Creative Industries Research and Applications Centre
Queensland University of Technology

The Ecology of Queensland Design

A report in the Mapping Queensland's Creative Industries series

CiRAC creative industries research and applications centre

THE ECOLOGY OF QUEENSLAND DESIGN

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Creative Industries, Design Industries, Economic Impact, Design Employment, Queensland

Abstract:

This report, "The Ecology of Queensland Design", is part of a series of research reports titled *Mapping Queensland's Creative Industries*. The research has been undertaken by the Creative Industries Research and Applications Centre (CIRAC) at Queensland University of Technology. The project has been funded by an Australian Research Council Linkage grant (LP0219438) with the support of the Brisbane City Council Department of Economic Development, Arts Queensland, and the Department of State Development (now Department of State Development, Trade and Innovation).

Reports in the *Mapping Queensland's Creative Industries* series include:

1 Brisbane's Creative Industries 2003
2 Queensland Music Industry Value Web: From the Margins to the Mainstream
3 Queensland Music Industry Basics: People, Businesses and Markets
4 Queensland Music Industry Trends: Independence Day?
5 Mapping Queensland's Creative Industries: Economic Fundamentals
6 The Ecology of Queensland Design

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Appendices

This report contains an overview of the Design segment. Detailed analyses of the sectors within the Design segment are contained in the Statistical Appendix available online at <http://eprints.qut.edu.au/archive/00002410/>

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DESIGN IS "HOT". .....

Whether it is the unprecedented market success of the iPod, the eye catching style of the latest best selling cars, the Guggenheim/Bilboa Museum[1] or the Bora dress of Miss Universe, there has been a substantial rise in the appreciation of the strategic importance of design across the economy and society. Organisations have found that competition on the basis of price and basic functionality has become fierce and less sustainable. Product and service differentiation requires a better understanding of customers' functional, aesthetic, emotional and social needs and it is in this domain that the creative and process skills of designers can provide a strong competitive advantage for those firms willing to invest in them.

The 2003 Queensland Creative Industries Strategy (QCIS) developed by the Queensland Department of State Development, Trade and Innovation (SDTI) defined the architecture, visual arts and design segment from the viewpoint of industrial activity classifications to include:

- Architects and landscape services;
- Urban design companies;
- Industrial design companies;
- Photographic studios; and
- Other industries with a creative design element, i.e. furniture and visual arts.

Of all of the Creative Industry segments, design is the most problematic to meaningfully measure: the majority of the specialist firms within the design segment sell their services, do not manufacture and most do not export, and most of the activities that involve the craft of design are also conducted by designers "embedded" within other segments of the economy that are not normally thought of as associated with the "Creative Industries".

But this does not mean that design is not important. On the contrary, the design segment is the archetypal "**leverage**" creative industry: while it does not generate high employment or have a massive industry turnover in itself, it is increasingly valuable in what it enables other industries to achieve. Studies in the UK, the US, Denmark and New Zealand have shown that an organisation's level of commitment to innovation and excellence in design is a very strong predictor of the firm's commercial success and international competitiveness. Strong design led manufacturers and service providers outgrow their competitors and, most significantly, are less exposed to price-based competition.

1. http://en.wikipedia.org/wiki/Guggenheim_Museum_Bilbao

The Ecology of Queensland Design project conducted by Creative Industries Research and Applications Centre (CIRAC) sought to better understand the size, shape and contribution of the segment to the Queensland economy and how it is placed with respect to other states and countries that also have placed an emphasis on design. The research is part of the three year Mapping Queensland's Creative Industries study.

KEY FINDINGS OF THE RESEARCH ARE:

Strategic Impact: Design creates leverage

- Effectiveness and excellence in design creates a substantial leverage for manufacturing, construction and service organisations to conduct better business with higher margins and to be more resilient to shocks. For a firm to be globally and regionally competitive design excellence must be one of its core values and not something added by "marketing" as a "veneer" at the last moment. (see 3.5 The Impact of Design on page 28).

Climbing the "Design Ladder"

- The output of design is often used by manufacturing firms and the higher they are on the "Design Ladder" the more competitive they are and the higher the proportion of their total revenues they obtain from exports (see 3.8 Design and Exports on page 38). The design ladder sequence of "design as style", "design as process" and "design as innovation" lifts products and services and their firms beyond their competition. Great design comes from a consistent culture of having design excellence as a critical part of the firm's business processes and values (see 3.3 The Design Ladder on page 26.)

Secondary Impact: The Value Added to the Gross State Product

- The CIRAC and SGS Economics and Planning 2005 report, Mapping Queensland's Creative Industries: Economic Fundamentals[1] showed the significant contribution to Queensland's Gross State Product of the Architecture, Visual Art and Design segment to be $320 million dollars out of a total turnover of $600 million. This represents 17% of the total creative industries contribution to GSP.

The Multiplier Effects of Design Are Strong

- The same analysis determined that the output multiplier for the design segment was high at 3.06, along with Music at 3.17 and Performing Art at 3.06 when compared to Agriculture's multiplier of 2.65, Mining at 2.52 and Manufacturing at 2.84. The output multiplier is the extent to which an increase in demand for Design services increases the level of production of goods and services in suppliers to the Design segment (see 4.6 Industry Flows: Demand-side Multipliers on page 52).

Direct Impact: Design related employment has been under counted

- The approach used by most analysts for measuring the employment impact of Design is by counting the people employed within the firms in the specialist design industries of Architectural Services and Photographic Services. CIRAC's analysis has shown this leads to under counting by 50% because of the high number of designers embedded in other industries and the poor

1. CIRAC and SGS Economics and Planning, Mapping Queensland's Creative Industries: Economic Fundamentals, 2005, Creative Industries Research and Applications Centre, Brisbane, <http://eprints.qut.edu.au/archive/00002425/>

coverage where some specialist design consulting activities within much broader business services or technical services industries. A number of overseas studies use an alternative approach of the counting the number of people in a range of design occupations but CIRAC's analysis shows this still results in an under count of 20% as it does not take into account the support staff working within design firms. (see 4.1 Employment in Design on page 40).

The Design Trident

- The Design Trident (or more generically the Creative Trident) is CIRAC's methodology for clearly expressing the combination of measuring both employment in design occupations and design industries. Without a framework such as the trident it would be easy to double count some employment and to overlook some other employment impacts.
  The "Design Trident" is the total of: designers employed in design industries, designers employed in non-design industries and non-designers employed in design industries.

The Queensland Design Trident

- In 2001 the total employment in the Design Trident in Queensland was 12,000 persons which directly generated almost $400 million in annual salaries and wages to Queensland's economy. There was a 10% increase in the number of people employed in the Design Trident between 1996 and 2001 and there was a significant 38% increase in the direct value of wages and salaries paid. (see "Employment in Design" on page 40)

Figure 1: Queensland's Design Employment Trident for 2001

2001 Queensland		Industry of Employment: Design Industries employ	Non-design Industries employ	Total employed in all industries	% of employment within design
Occupation of Employed	Design occupations	3,365	6,445	9,810	34.3%
	Non-design occupations	2,185		2,185	
	Total employed in all occupations	5,550	6,445	**11,995**	
		60.6%			

Employment of Designers across all industries

- The total employment of design talent across all Queensland industries was 9,810 in 2001 (up from 8,717 in 1996) which generates $335 million in annual salaries and wages. Of this 3,365 people were employed in the specialist core design industries of Architectural Services and Photography Services.

Embedded designers

- 66% of designers are what CIRAC terms "embedded", in that they are employed in non-design industries such as publishing, advertising, local government, banking and manufacturing. This is almost double the numbers of designers working in the specialist design and design consulting industries (termed specialists). Employment of designers "embedded" in other industries was 6,445 (compared to 3,365 employed in specialist industries) in 2001 which generated $175 million in annual salaries and wages. Between 1996 and 2001 there was shift from employment within specialist firms (-5%) to embedded employment (+25%) leading to a 12.5% overall growth in the number of designers.

Employment within the Specialist Design Industries

- The Queensland Creative Industry Strategy (QCIS[1]) defined the "Design Industry" by specifying only two industry classification categories (Architectural Services and Photographic Services) at the four digit Australian and New Zealand Standard Industrial Classification level of detail. These two industries together generated $221 million in salaries for total staff of 5,550 in 2001 (a minor difference to the QCIS total of 5,470) . But CIRAC 's analysis also shows that approximately 40% of those employed within these industries are not designers. Of the $221million of the salaries and wages, $56 million was earnt by support and general staff and not to people employed as architects, photographer, or other specialist designers.

The Density of Designers and those Qualified in Design

- According to the 2001 Census Queensland has a slightly lower density of people qualified in design disciplines per hundred thousand of the workforce than NSW and Victoria. Fortunately Queensland has a higher relevance rate at 51% compared to NSW (39%) and Victoria (40%). The relevance rate is the proportion of qualified designers that are being employed in design occupations irrespective of the industry of employment.

1. ICF Consulting, SGS Economics and Planning, Queensland Creative Industries Strategy (QCIS), 2003,Queensland Department of State Development, Trade and Innovation, Brisbane, <http://www.sdi.qld.gov.au/dsdweb/v3/guis/templates/content/gui_cue_cntnhtml.cfm?id=272>

Queensland graduates seem to be more able to find either paid employment (working for others) or customers to provide revenue to their consulting business in design occupations that are relevant to their design qualification.

Table 1: Comparisons of the density of qualified designers and design occupations in the workforce

	Australia	NSW	VIC	QLD
Density of people in workforce that are **qualified** as designers per 100,000 persons in the workforce	997	1,121	1,137	735
Density of people employed in design **occupations** per 100,000 persons in the workforce	700	744	768	622
Relevance Rate: The % of design occupation density to design qualifications density	**42%**	**39%**	**40%**	**51%**

Concentration effects

- As other Australian[1] and overseas studies[2] have consistently shown, design is subject to concentration effects. South East Queensland with 65% of Queensland's population is home to 80% of those who are employed as designers and is home to 77% of Queensland's design businesses. 81% of those who are qualified as designers are also in this region even if they are working in non-design occupations or in non-design industries.
- There are a few sectors of design, especially illustration and the more art-related sectors where the South East Queensland dominance is not as strong. This presents the state and local governments with an opportunity to harness this pool of talent for regional economic benefit. (see "Regional Comparison of the Density of Design Qualifications" on page 61)
- Queensland, as the third most populous state with the third highest level of manufacturing is consistently the third most important design state. Other states have also recognised the strategic importance of design and are developing programs to develop their capabilities. Without continued development and government support, Queensland could find itself falling behind. As Victoria has proved, concerted effort by government, industry and education can make a substantial difference to industry development and growth with Victoria outperforming NSW by 50% in 2001 (in density terms) in the two very key design areas of fashion design and industrial and product

1. Prof Michael Berry, Innovation by Design: The Economic Drivers of Dynamic Regions, 2003, Lab3000 (RMIT), Melbourne, 0-646-42863-2, <http://www.lab.3000.com.au/LoadDownload?id=68216938-2f3b-4c1a-9c42-72b5393585eb>
2. Meric S. Gertler And Tara Vinodrai, Designing The Economy: A Profile Of Ontario's Design Workforce, 2004, The Design Industry Advisory Committee, DIAC, <http://www.utoronto.ca/progris/pdf_files/DesigningTheEconomy.pdf>

design. The Fashion Designer density per 100,000 people in the workforce for NSW is 37, for Victoria is 47 and Queensland is 17, while the density for Industrial Designers NSW is 22, Victoria is 32 to Queensland is 17 for the 2001 census.

The size of firms

- Design firms, being predominantly micro and small enterprises see their biggest business problems as obtaining, retaining and affording staff to complete projects, managing the money both in terms of cashflow and funding for growth and attracting and keeping customers.
  These problems are reflected in many firms use of sub-contractors and the use of formal and informal teaming for the attraction of new customers and the delivery of projects.

The importance of networking

- Business and social networks involving peers within the sector, suppliers and customers are critical to the competitiveness of design firms as they provide an "off balance sheet" method for growing the vertical scale (diversity of skills), the horizontal scale (work capacity) or to attract and retain customers (see 6.5 Case Study: The Fortitude Valley Design Cluster on page 105).

Manufacturers using Specialist Design Firms Vs Embedded Designers

- Firms that are more intense users of the design process can purchase external design skills from consulting companies, utilise an internal design department or in the case of larger firm with a very strong design culture have an internal design function that works closely with external designers. The important factor however is how well design functions are integrated into the firms business, not necessarily just where they are sourced from (see 3.6 The differences between Specialist and Embedded Designers on page 34).

CONCLUSION: CAPITALISING ON QUEENSLAND'S TALENT BASE OF DESIGNERS

Queensland has the design talent to substantially increase the competitiveness of the state's manufacturers, building firms and services industries who are faced with increasing "lowest price" competition from manufacturers in low cost, developing countries.

The opportunity that design presents for Queensland is to grow the recognition by the firms in these industries of the critical importance of design, increase the knowledge of how to shift their firms into being design lead and to develop programs that encourage their long term teaming with Queensland's pool of talented designers.

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SECTION 1: BACKGROUND ON THE ECOLOGY OF QUEENSLAND DESIGN

1.1 CONTEXT

This report, "The Ecology of Queensland Design", is part of a series of research reports titled Mapping Queensland's Creative Industries. The research has been undertaken by the Creative Industries Research and Applications Centre (CIRAC) at Queensland University of Technology. The project has been funded by an Australian Research Council Linkage grant (LP0219438) with the support of the Brisbane City Council Department of Economic Development, Arts Queensland, and the Department of State Development (now Department of State Development, Trade and Innovation).

Mapping Queensland's Creative Industries has sought to build on the advances in understanding Queensland's creative industries made through the Department of State Development's 2003 Queensland Creative Industries Strategy Creativity is Big Business <http://www.sdi.qld.gov.au/dsdweb/v3/guis/templates/content/gui_cue_doc.cfm?id=2775>. This is a substantial policy framework for the development of the creative industries in Queensland, and this report should be read in conjunction with Creativity is Big Business. It aggregated industry sectors into segments, putting together Film, Television & Entertainment Software; Writing, Publishing & Print Media; Music Composition and Production; Architecture, Visual Arts and Design; Advertising, Graphic Design and Marketing; and the Performing Arts. The Architecture, visual arts and design segment, the subject of this report, covers a number of elements, including:

- Architects and landscape services;
- Urban design companies;
- Product and Industrial design companies;
- Photographic studios; and
- Other industries with a creative design element, i.e. visual arts and furniture.

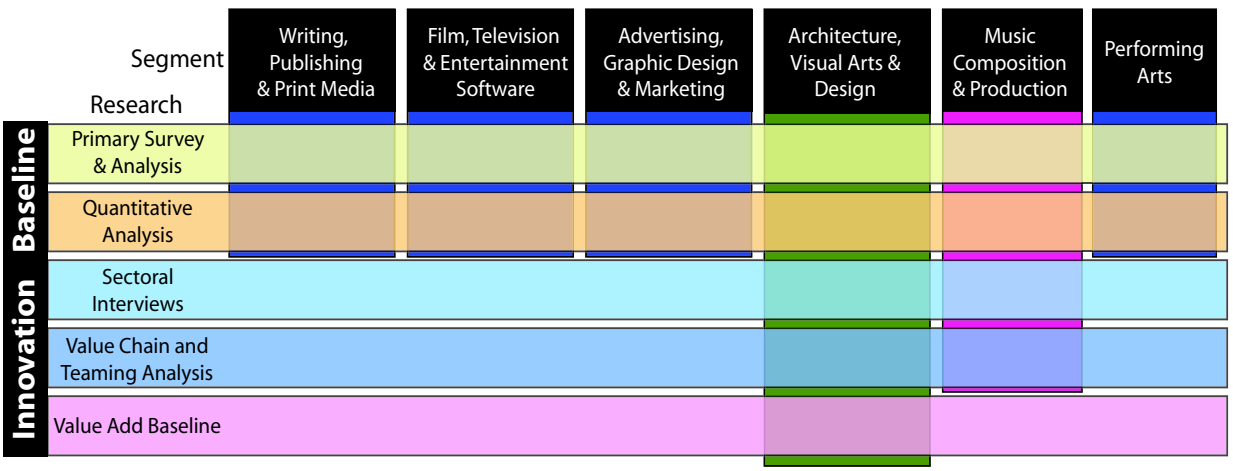
How has the CIRAC research sought to build on the work of Creativity is Big Business? Mapping Queensland's Creative Industries provides deeper intelligence on the creative industries through empirically based research. The evidence from this research shows that these sectors are significantly undercounted in official statistics. We have quantified the creative industries with a higher level of confidence because of extensive primary data collection. We have revised official categories into which the data fits in a way that

reflects the changing realities of these industry sectors. We have been concerned to pursue the hypothesis that creative skill sets, that are being developed in the creative industries sector, have become more significant enablers in the broader economy. We have evidence from Mapping Queensland's Creative Industries that this is in fact the case. We have provided a deeper understanding of inter-relationships with other sectors and between the sectors for these six clusters. By and large Mapping Queensland's Creative Industries confirms the findings of Creativity is Big Business, but it takes them to a higher level of robustness and could beneficially inform policy and planning for Queensland's creative industries.

1. Mapping Queensland's Creative Industries Overall Approach

All six segments included within the Mapping Queensland's Creative Industries project were studied via a primary survey of the industry including input output and multiplier analysis. A quantitative analysis of existing statistics was also conducted. (CIRAC and SGS Economics and Planning, Mapping Queensland's Creative Industries: Economic Fundamentals, 2005)

Figure 2: The levels of analysis of the Queensland Creative Industry Mapping Study



Two segments, Music and Design, were studied in more detail through:

1 Sectoral interviews and case studies

2 Value Chain and teaming analysis

3 Value Add analysis via research literature review.

The first deliverables from the three year project were three reports on the Music Segment that were published in mid 2004:

1 Queensland Music Industry Value Web: From the Margins to the Mainstream[1]

1. <http://www.creativeindustries.qut.edu.au/research/cirac/documents/qmibasics.pdf>

2 Queensland Music Industry Basics: People, Businesses and Markets[1] and

3 Queensland Music Industry Trends: Independence Day? [2]

These reports were the result of two primary surveys conducted by CIRAC in 2003:

1 a mapping survey with 357 respondents

2 a qualitative study based on 20 face to face interviews.

The Design Segment was selected as the second segment to be studied in detail as it was felt this could show the direct and indirect outputs of a creative industry. The project objectives were to:

- Establish the size, value, employment and distribution of the various sectors of the Design segment
- Examine the quality and nature of the linkages between the different members of the Queensland Architecture, Design and Visual Arts clusters including non-craft participants
- Determine the degree to which actions to grow these linkages could be used to improve the international competitiveness and performance of the clusters.

The input/output multiplier survey analysis utilised a different methodology to establish the market size and economic impact than the secondary analysis that is the subject of this report.

1. <http://www.creativeindustries.qut.edu.au/research/cirac/documents/valueweb.pdf>
2. <http://www.creativeindustries.qut.edu.au/research/cirac/documents/iday.pdf>

SECTION 2: THE ECOLOGY OF QUEENSLAND DESIGN METHODOLOGY

The Ecology of Queensland Design project used a triangulation approach in an endeavour to overcome the shortcomings of existing statistics sources.

Understanding the ecology of Queensland Design can only be achieved by combining a number of approaches, each having limitations, but in combination many of the gaps, crevices and folds of the segment can be illuminated and better understood. This required looking at a range of measures of the employment and industry activities as well as the level of production and consumption of services and products.

2.1 EXISTING DATA ANALYSIS METHODOLOGY

The effectiveness of the analysis of existing data on the creative segments is determined to a large degree by the appropriateness of the statistical classification scheme used to codify the data. A broad or ill defined category for an industry activity, an occupation or a qualification field of study, has the potential to count other occupations or industry activities that are not relevant to the sector or segment being studied.

The Australian Bureau of Statistics only makes available industry activity analysis at the 4 digit level which often groups unrelated activities together. However the ABS is able to provide occupation and qualification related employment data within categories that much more closely match real world occupations and qualifications.

Therefore the most reliable of approach which could offer some of the greatest insights into sectoral composition is through developing a better understanding of design talent. In other words, where are people employed who have been educated as designers or are employed in particular design occupations. Statistics from the 2001 and 1996 Census were analysed to better understand Creative Industry employment patterns and their value add including:

- the numbers and ratios of designers working within design firms and firms in other industries analysed for each design sector and for each major geographic region.
- the number and ratios of designers and non-designers employed within specialist design industries by the type of industry and location.
- the occupation and employment patterns of those people who have design qualifications

- the total income from employment of designers working within design firms and firms in other industries.
- comparisons of Queensland's design characteristics within and between the states and major regions.

However, because this employment analysis is based on Australian Bureau of Statistics 2001 and 1996 Census data, it cannot provide any insight into the number and nature of organisations that employ designers as the data does not collect any firm specific information. Nor, because of the ABS's confidentiality requirement, could it provide fine-grained location information below the major regions level on how employment patterns may have changed between 1996 and 2001.

To obtain this additional information, researchers utilised fine-grained counts of business listings from Sensis Yellowpages. Sensis Yellowpages. CIRAC has analysed the numbers of businesses within the Queensland Design Segment that have a Yellowpages listing for the years 1999 to 2003, for every postcode at the finest level of Yellowpages categorisation.

This categorisation is potentially three times more detailed than the ANZSIC at the 4 digit level. Utilising the Sensis data has allowed CIRAC to better understand the local area density trends within sectors of the Design Segment.

The Sensis data has been able to be broadly calibrated by comparison to the numbers of organisations registered with the Australian Business Register established in 1999 to facilitate the rollout of the GST system.

Table 2: The common Classification Systems used within this report

Acronym	Name	Measuring	Level of Detail
ANZSIC	Australian and New Zealand Standard Industrial Classification	The Industry of business activity or the industry of employment	Coded at 4 digits plus for some industries the Australian Business Registers adds a further digit
ASCO	Australian Standard Classification of Occupation	The occupation of employment for Census purposes	Coded and available at the level of 6 digits but only available at 4 digits for some reports
ASCED	Australian Standard Classification of Education	Highest post-school qualifications	Coded at 6 digits for 2001 census
ABSCQ	Australian Bureau of Statistics Classification of Qualifications	Highest post-school qualifications	Only coded at 3 digits for 1996 Census
Sensis	Yellowpages listings business activity	Main business activity	Coded to 5 digits which are then mapped to ANZSIC 4 digits

To manage these disparate categorisation schemes and the analysis of the data categorised with the schemes, CIRAC developed an abstract categorisation scheme (The CIRAC spine) which allowed each of the finest classifications to be consistently mapped to the appropriate design sector.

The Design Segment Definitions Used

The characteristics of the design segment is determined by examining a specific list of design industries, design occupations and design qualifications. These have been selected because they are focused at the creation and publishing stages of the value chain and are also part of the core value chain. Industries, occupations and qualifications that are specifically related to the downstream manufacture, distribution or retailing of designed items or providing support or education service to the segment have not been included in the analysis.

Industry of Activity

The following are the industry classifications that have been used throughout this report as the basis for calculating the size of the design segment on the basis of industry.

Table 3: Queensland Creative Industry Strategy Definition of Design Segment

Code	Segment	Relevant ANZSICs for measurement	Count of Employed
QCIS4	Architecture, Visual Art and Design	7821 Architectural Services	4,687
		9523 Photographic Studios	868
For the following two industries the design activities are a minor component of industry at the ANZSIC4 level so they are only analysed when available in ANZSIC 5 or SENSIS5 as the			
		Parts of 7823 for Fashion, Furniture and Product Design	
		Parts of 7869 for Interior and Jewellery Design	
The following are analysed but not included when calculating the segment size as this is counted in Graphic Design, Advertising & Marketing			
		7852 Commercial Art and Display Services	2,122

Commercial Art and Display is included in many detailed table as most studies of the design segment also include this industry however the industry is not included when calculating the total size of the design segment.

Design Occupations

The following occupations are used to determine the size of the design segment on the basis of occupation of employment.

Table 4: Definition of Design Segment on the basis of occupation

CIRAC Spine sector		ASCO6	Occupation
Broad Architecture Related			
A6110	Architecture	212111	Architect
A6110	Architecture	212100	Architects And Landscape Architects
A6111	Drafting	312113	Architectural Associate
A6117	Landscape Design	212113	Landscape Architect
A6118	Urban Design	252311	Urban and Regional Planner
A6115	Interior Design	253317	Interior Designer
A6115	Interior Design	399911	Interior Decorator
A6120	Marine Architecture	212921	Naval Architect
Broad Fashion Related			
A6113	Jewellery Design	498311	Jeweller
A6113	Jewellery Design	498381	Apprentice Jeweller
A6114	Fashion Design	253311	Fashion Designer
Product Design			
A6116	Product Design	253315	Industrial Designer
Visual Arts			
A6210	Artist	253300	DESIGNERS AND ILLUSTRATORS
A6210	Artist	253111	Painter (Visual Arts)
A6210	Artist	253319	Illustrator
A6210	Artist	253000	Artists And Related Professionals nfd
A6210	Artist	253100	Visual Arts And Crafts Professionals
A6211	Sculptor	253113	Sculptor
A6215	Visual Arts nec	253115	Potter or Ceramic Artist
A6215	Visual Arts nec	253179	Visual Arts and Crafts Professionals nec
Photography			
A6221	Photography	253211	Photographer
A6221	Photography	599917	Photographer's Assistant
The following are analysed but not included when calculating the segment size			
A6112	Graphic Arts	253313	Graphic Designer
Preservation			
A6213	Museums and Galleries	254911	Conservator

Table 4: Definition of Design Segment on the basis of occupation

CIRAC Spine sector		ASCO6	Occupation
A6213	Museums and Galleries	254921	Museum or Gallery Curator
A6213	Museums and Galleries	399913	Museum or Art Gallery Technician

Design Qualifications

The following standard qualifications are relevant to the understanding of the design segment. However Qualifications are not used to determine the size of the segment.

Table 5: Qualifications relevant to the Design Segment

CIRAC Spine sector		Qualification (3 digit ABSQ 1996) 6digit ASCED 2001)	
Broad Architecture Related			
A6110	Architecture	40000	Architecture and Building n.f.d.
A6110	Architecture	40101	Architecture
A6110	Architecture	700	Architecture and Building nfd
A6110	Architecture	711	Architecture
A6110	Architecture	799	Other Architecture Building nec
A6111	Drafting	710	Building Design nfd
A6115	Interior Design	40107	Interior and Environmental Design
A6115	Interior Design	712	Interior Design
A6115	Interior Design	719	Building Design nec
A6117	Landscape Design	40105	Landscape Architecture
A6118	Urban Design	40100	Architecture and Urban Environment n.f.d.
A6118	Urban Design	40103	Urban Design and Regional Planning
A6118	Urban Design	40199	Architecture and Urban Environment n.e.c.
A6118	Urban Design	499	Other Society and Culture nec
Broad Fashion Related			
A6113	Jewellery Design	100307	Jewellery Making
A6114	Fashion Design	30105	Textile Making
A6114	Fashion Design	100503	Textile Design
A6114	Fashion Design	100505	Fashion Design
A6114	Fashion Design	485	Fashion Design
Product Design			
A6116	Product Design	30703	Industrial Engineering
A6116	Product Design	693	Industrial Engineering Science
A6121	Industrial Design	790	Other Archtctr and Buildng nfd
Visual Arts			

Table 5: Qualifications relevant to the Design Segment

CIRAC Spine sector		Qualification (3 digit ABSQ 1996) 6digit ASCED 2001)	
A6210	Artist	100000	Creative Arts n.f.d.
A6210	Artist	100301	Fine Arts
A6210	Artist	482	Art and Craft
A6215	Visual Arts nec	100300	Visual Arts and Crafts n.f.d.
A6215	Visual Arts nec	100305	Crafts
A6215	Visual Arts nec	100399	Visual Arts and Crafts n.e.c.
A6215	Visual Arts nec	792	Glass Working
Photography			
A6221	Photography	100303	Photography
A6221	Photography	483	Photography
The following are analysed but not included when calcuating the segment siz			
A6112	Graphic Arts	100500	Graphic and Design Studies n.f.d.
A6112	Graphic Arts	100501	Graphic Arts and Design Studies
A6112	Graphic Arts	100599	Graphic and Design Studies n.e.c.
A6112	Graphic Arts	484	Graphic Design
Preservation			
A6213	Museums and Galleries	91303	Curatorial Studies

Census data on qualification can provide insights into the labour force participation rate for specific design qualifications that are not able to be determined on the basis of occupation. In the census the Occupation of employment is not asked for people who are not in the workforce but their highest non school qualification is obtained.

2.2 PRIMARY RESEARCH METHODOLOGY

To better understand the segment's business dynamics and practises CIRAC conducted a comprehensive primary survey and a series of strategic focus groups and interviews

Quantitative survey.

As part of the Mapping Queensland's Creative Industries, telephone and face to face interviews were conducted with over 450 firms from all the creatives segments across Queensland. This included ninety eight organisations in the design segment. The phone and face to face interviews were carefully targeted to ensure that there were representative numbers of organisations on the basis of the industry activity, on the basis of firm size based on turnover estimates and on their location within Queensland.

The survey included questions to identify:

- the income and expenditure characteristics of the Value web;
- their perception of barriers to their business growth;
- their participation in clusters and industry associations;
- their access to and use of professional advice (Accounting, Sales and Marketing, copyright, funding, exporting, R&D, management);
- their use of partnering as a strategy; and
- the extent and nature of their business networks.

All responses were coded using CIRAC's seven digit version of the ANZSIC Industry activity classification scheme.

Of all the responses, three hundred and fifty were suitable for the economic analysis and input output modelling which was conducted by SGS Economics.

The Fortitude Valley Case Study

The Fortitude Valley Case Study was designed to provide an intensive analysis of the relationships involved in clustering in the context of everyday practices of those working in the design industries. The focus groups were conducted with over 30 design professionals based in Fortitude Valley (Brisbane). This location (or grouping) was selected as a specific case study of industry cluster practices as the statistics showed high relative densities across nearly all of the sectors within the Design segment. The researchers felt that the often subtle cluster and network effects would be easier to determine and understand when the relative population densities are highest.

2.3 DETAILED SECTOR REPORTS

Detailed analyses of the individual sectors that make up the design segment are in the Appendices to this report which are available in electronic form from the CIRAC National Mapping Project website at <http://eprints.qut.edu.au/archive/00002410/>

SECTION 3: THE IMPORTANCE OF DESIGN

3.1 THE DESIGN DEFINITION

According to the Design Institute of Australia <http://dia.org.au> a designer is a business professional who develops solutions to commercial needs that require the balancing of aesthetic and technical requirements. A designer can be said to be both technician and artist. A designer envisions and plans things for manufacture or construction. The difference between a designer and a craftsperson or artist is that designers usually develop things that have requirements set by others and that will ultimately be produced by others. An essential part of design is the preparation of plans and instructions that will allow for the accurate production of the design by others.

Design is by definition then an enabling function: to improve the outcome for others. Unlike all other creative industries, design rarely has a direct output, it is a service input into other industry and organisational activities. As a result its activities are diffused across a number of standard industrial classifications some of which are substantially involved with design (architectural services and photographic services) and other which have a minor proportion of design within a broader services category (technical services and business services).

Design is not truly an industry "segment" rather it is a grouping of professional services to industry which are available either independently through specialist consultancies or through direct employment of design teams. Most importantly, design should not be treated as an expense item for a firm but as an essential, ongoing capital investment, part of research and development and alongside the investment in plant and equipment.

3.2 THE DESIGN PROCESS

The Design Institute of Australia defines design <http://dia.org.au/index.cfm?module=file&id=7> as being a structured process that follows methodically from one stage to the next:

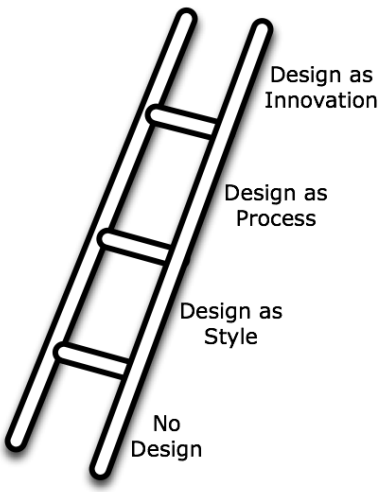
- the brief;
- research;
- concept solutions;
- design development;
- documentation;
- implementation;

Very often the process is iterative; it will loop back after testing at the concept stage to revisit the assumptions, to refine a concept, to then

prototype it and test it again prior to documentation and implementation.

Design as a function within a particular field can be performed at the high end by a trained and talented specialist with professional accreditation such as an architect or industrial designer or else by a less qualified trades person such as a building designer and some times by a hobbyist or business person with no training in the area. The quality of the output is almost invariably dependent on the quality of the inputs and therefore the greater the level of training and experience as well as the level of creative talent of the designer, the better the output.

3.3 The Design Ladder



Believing that design is just about talented individuals creating great "objects" is a dramatic simplification. Design is a process for approaching the achievement of excellence in innovation in a production, manufacturing or business field. Design is not about the individual: design is how well groups of people organise themselves to deliver new products and services.

The Swedish Industrial Design Foundation[1] defines this as the design ladder, which is:

> *"a useful 4-step model for grouping companies' design maturity on the basis of their attitudes towards design. The higher a company is up the ladder, the greater strategic importance design has for the company.*

First step: Non-design	*Design is a negligible part of product development etc., and any design activities there are fall to professional groups other than designers.*
Second step: Design as styling	*Design is seen solely as relating to the final physical form of a product. This can be the work of a designer, but is usually created by other employees.*
Third step: Design as process	*Design is not a result but a method that is integrated early on in the development process. The production outcome requires contributions from a range of specialists.*
Fourth step: Design as innovation	*The designer works closely alongside the company's owners/ management on a complete or major renewal of its business concept."*

Source: The Swedish Industrial Design Foundation[2]

1. Swedish Industrial Design Foundation <http://www.svid.se/wlt/7FFF9336-1086-4965-8C4F-0CD72E90700B.wlt>
2. Swedish Industrial Design Foundation (SVID) and The Association of Swedish Engineering Industries,10 points, May 2004 <http://www.svid.se/wlt/620B19B0-697E-4A7C-A4AE-C0BA8B5511F7.wlt>

3.4 THE OUTPUTS OF DESIGN

The completion of the design process is normally a set of drawings and specifications sometimes accompanied by prototypes, models or samples. The output of design is the intermediate input into manufacture: whether it is the construction of a building, its interior fit-out, manufacturing of a range of clothing or a new medical device, the production of a book, brochure or website.

The precise nature of this output varies for each sector within the segment and according to the level attained on the Design Ladder.

Clearly not every house is architect designed, but there is no technical reason why they shouldn't be, on the other hand it is the very rare public or commercial building that is not architect designed. The degree to which production or implementation is wholly or partially dependent on the output of design is a result of many factors including legislation, social and business attitudes, competition and awareness of the benefits of formal design over the alternatives.

Table 6: The intermediate and final outputs of the Design functions

Sector	(1) Intermediate Output/Input	(2) Dependent production	(2) Partially dependent production	(3) Benefits of moving up the Design Ladder
Architecture	Plans, models, specifications, project management	Commercial buildings construction	Domestic residences construction (Approximately 30%)	Increased usability and quality of life, improved environmental, material and site use efficiency, improved resale value. Aesthetic, psychological and health as well as tangible benefits
Landscape Architecture	Plans, models, specifications project management	Commercial and public landscaping developments	Domestic landscaping construction	
Interior Designer	Plans, models, mock-ups, specifications project management	Commercial and public interior fit-out and construction	Domestic interior decorating	
Urban & Regional Planner	Strategies plans, models, requirements, approvals		commercial, public and domestic construction	Improved quality of life, more viable urban environment
Naval Architecture	Plans, models, test results, specifications	Ship building and yacht construction	Small boat construction	Increased efficiency, functionality, performance, improved branding

Table 6: The intermediate and final outputs of the Design functions

Sector	(1) Intermediate Output/Input	(2) Dependent production	(2) Partially dependent production	(3) Benefits of moving up the Design Ladder
Industrial and Product Design	Drawings, prototypes, test results, specifications project management	Electrical, medical, household, office, whitegoods, computer, tools etc. product manufacture		Increased market differentiation and competitiveness, improved margins, improved manufacture efficiency
Furniture Design	Drawings, prototypes, specifications	Furniture Manufacture	Cabinet Making	
Fashion Design	Sketches, patterns, samples	Fashion apparel manufacturer	General apparel, clothing and textile manufacture	
Photography	Photographic images, files	Photographic prints	Newspapers, books, magazines, web pages, advertising, throughout commercial and government businesses	Increased market differentiation and competitiveness
Illustration	Illustrations, files			
Graphic Design	Designs, storyboards, specifications, mock-ups, prototypes, files			
Visual Arts	Designs, specifications, prototypes	A unique painting A unique sculpture	Ceramic tile and houseware manufacturing, Glass manufacturing	
Jewellery design	designs, specifications, samples	Custom jewellery	Mass produced jewellery	

Source: CIRAC analysis

3.5 THE IMPACT OF DESIGN

Estimating the contribution of design to the Queensland economy should be based on three possible measures:

Primary

1 The **Direct Impact**, the employment, the total turnover and direct value-add of the design services segment;

Secondary

2 The **Downstream Impact**, the value-add of the manufacturing or construction, wholesaling and retailing of products and services that are wholly or partially dependent on design

Tertiary

3 The **Strategic Impact**, the difference in the return on investment, the value-add and the rate of growth between:

- the production by design intensive firms that consistently and professionally utilise "design as innovation" and "design as process" and their subsequent demand and consumption and;

- the production and subsequent consumption of goods and services that have not been formally designed.

It is relative straight-forward to calculate the direct impact (1), that the design segment generates $X million directly in turnover, salaries and value-add.

It is more difficult to measure the secondary, downstream impact where design is a key input into manufacturing and may generate $X times "Y" over the lifetime of the product, project or service. Economic analysis such as that conducted by SGS Economics[1] on behalf of CIRAC is able to estimate the value of the "X" being the direct value add ($319 Million) and the value of "Y" the multiplier (3.06) to downstream production.

Unfortunately traditional economic analysis cannot easily provide a measure for (3) the strategic or tertiary impact; in part because there is almost no data on what proportion of total production is "design led" production and because there are too many variables that impact on the factor including the quality of the execution, the investment in sales and marketing and competitive actions.

Recently the strategic value of design been the subject of research in the UK, in the US and in Denmark and all have consistently highlighted the critical importance of design to the competitiveness of manufacturing, construction and services.

Each year the UK Design Council conducts a comprehensive survey of 1,500 UK businesses of their the attitudes and level of investment in design and their organisation business performance. The most recent Design In Britain 2004 Survey[2] states:

> *The research demonstrates the centrality of design skills to the competitiveness and growth of successful UK businesses and their ability to create and sell great new products and services that meet real customer needs. For example, companies that see design as integral to their work report its direct, positive impact on practically every measure of business performance, including sales, profit, quality, product and service development and market share.*

Firms who do choose not to compete on the basis of innovation in design are forced to compete on the basis of price: this initiates a negative spiral where lower margins inexorably leads to lower investment in research and development, which further erodes the ability for meaningful product and service differentiation which further drives the organisation to compete on price.

1. CIRAC and SGS Economics and Planning, Mapping Queensland's Creative Industries: Economic Fundamentals, 2005, Creative Industries Research and Applications Centre, Brisbane, <http://eprints.qut.edu.au/archive/00002425/>
2. Public and Corporate Economic Consultants, Design in Britain 2004-5, 2005, UK Design Council, London, <http://designcouncil.org.uk/webdav/servlet/harmonise?Page/@id=13&Asset/@id=8164&Document/@id=8175>

Design led firms found that the more they integrated design excellence into the whole process of conceiving and manufacturing products and business services the stronger the market response, the higher the margins and the better the company is able to respond to changes in the market.

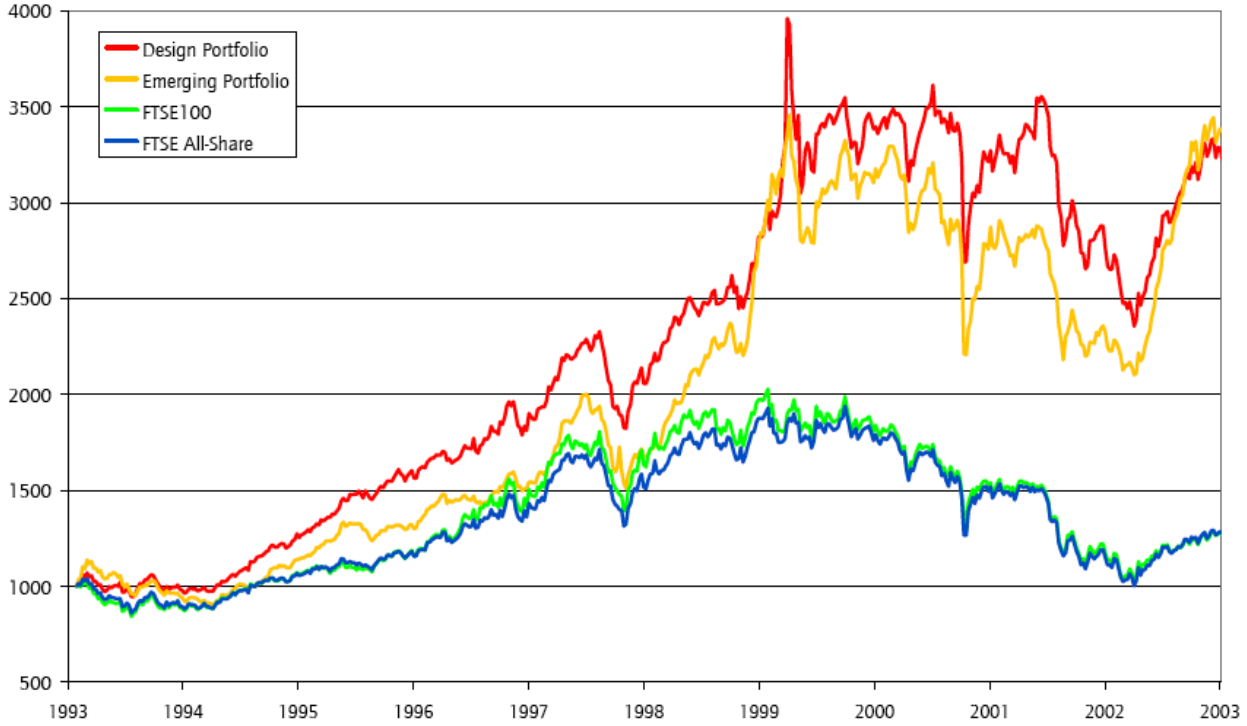
- Where design is integral, 44% of firms see a resulting increase in competitiveness and turnover.
- Of the companies surveyed only 32% had introduced a new product or service in the past three years. In firms where design is integral 67% have done so.
- 45% of companies that don't use design compete mainly on price: Where design is significant only 21% compete on price.
- Design is integral or significant to 33% of growing companies but to only 11% of shrinking ones.[1]

A separate study, also commissioned by the UK Design Council[2] analysed the impact on the stock market performance of a pool of firms listed on the UK stock market some of which had demonstrated a level of commitment to design excellence when compared to their peers. The criteria for selecting the firms in the design excellence category was based on the firm or their products receiving design awards over the period. The share market performance of the companies in the pool was tracked over 10 years from 1994 to 2003. The study identified a group of 63 companies who were effective users of design. These companies were grouped into two portfolios – the 'Design Portfolio' and the 'Emerging Portfolio' – comprising, respectively, high and lower scorers in terms of the number of awards won by each company and therefore the effectiveness of their use of design.

Both groups outperformed the UK Stock Market FTSE 100 index over the full period by 200% and showed greater resilience to the market shocks of 1997 and 2001.

1. PACEC, (2005) <http://designcouncil.org.uk/webdav/servlet/harmonise?Page/@id=13&Asset/@id=8164&Document/@id=8175>
2. UK Design Council, The Impact of Design on Stock Market Performance: An Analysis of UK Quoted Companies 1994-2003, 2004, UK Design Council, <http://www.design-council.org.uk/resources/assets/assets/pdf/Research/Impact%20of%20Design%20on%20Stock%20Market%20Performance%20February%202004.pdf>

Figure 3: Relative stock market performance of UK quoted companies 1993-2003



Source: The Impact of Design on Stock Market Performance An Analysis of UK Quoted Companies 1994-2003 February 2004 UK Design Council

A 2005 US study took this further and conducted a multi-variate analysis of 93 firms' financial performance over a ten year period. A panel of 138 industrial design experts was used to rank the industrial design effectiveness of publicly traded firms within nine selected manufacturing industries. Based on the rankings, firms within each industry were divided into two groups: those judged as exhibiting high design effectiveness versus those judged as low in design effectiveness. The firms audited financial data reported to the US Securities Exchange Commission (SEC) across a seven-year period from 1995 to 2001 were used to evaluate financial performance.[1]

The researchers developed five hypotheses to test:

Hypothesis 1: Firms most effective at demonstrating good industrial design will have higher return on sales than firms that are less effective.

Hypothesis 2: Firms most effective at demonstrating good industrial design will have higher return on assets than firms that are less effective.

Hypothesis 3: Firms most effective at demonstrating good industrial design will have higher growth rates for sales, net income, and operating cash flows than firms that are less effective.

Hypothesis 4: Firms most effective at demonstrating good industrial design will have stock market

1. Julie H. Hertenstein, Marjorie B. Platt, and Robert W. Veryzer, The Impact of Industrial Design Effectiveness on Corporate Financial Performance, 2005, Journal of Product Innovation Management, 22: 3-21, Kluwer Academic Publishers

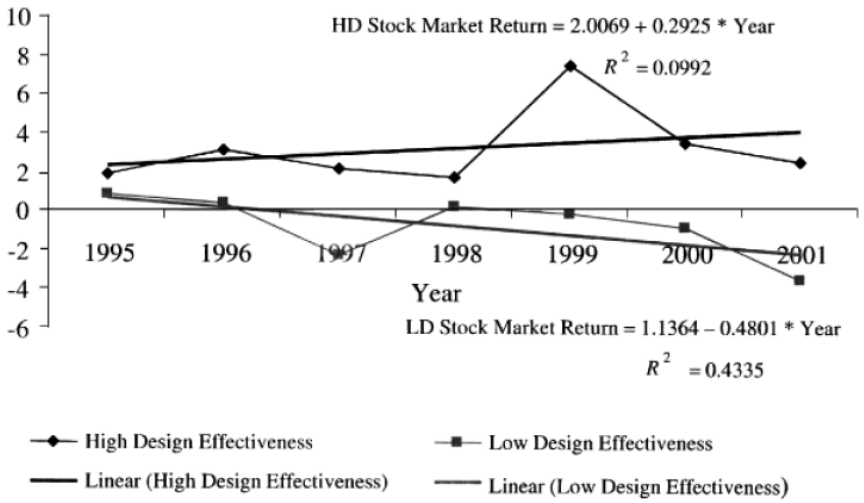
returns that are higher than firms that are less effective.

Hypothesis 5: Firms most effective at demonstrating good industrial design will have better financial performance than firms that are less effective.

With the exception of the "higher growth rate of sales" component of hypothesis 3, all five hypotheses were proven to be valid with a significant degree of confidence.

Design effective firms had an overall financial performance that was 38.3% higher than the relevant industry average while by comparison the low design firms had a financial performance 13% lower than the relevant industry average. There was a 51% performance difference between high and low design firms.

Figure 4: Industry relative five-year US stock market return for low and high design effectiveness firms



Source: The Impact of Industrial Design Effectiveness on Corporate Financial Performance

The findings do not suggest that every firm with effective design will have superior financial performance as effective industrial design alone cannot overcome such problems as inefficient production or weak sales and marketing or an industry dominated by standards lock-in and network effects.

Strategically it does not particularly matter if the commitment to design excellence is the cause or effect of the improvement in a company performance. Either:

- A manufacturing company outperforms its competitors because it is design led or
- A company has set aggressive performance goals and one of its strategies for achieving these goals recognises the importance of being design led and therefore consistently invests in it.

The lessons for industry members and government instrumentalities responsible for developing their manufacturing industry are the same: To foster an improvement in business fundamentals and to

increase the competitiveness of a manufacturing firm requires an investment in effective design excellence as well as the other, more traditional, factors. An investment in design is of a similar strategic importance as an investment in capital equipment and there is a similar "return on design" (ROD) as there is a return on investment (ROI).

The 2003 study by the Danish Design Centre on the Economic Effects of Design[1] showed:

- *Danish companies invest an annual DKK 5 billion (A$1.1 billion) in the external procurement of design and approx. DKK 2 billion (A$0.44billion) in internal design purchases. The effect of public investments in design in narrow terms, the resources devoted to design education and research and the annual DKK 12.5 million of public funding invested in the promotion of design, has not been subject to study in this survey.*
- *Danish companies that purchase design have registered a total increase in their gross revenue over the past 5 financial years that is approximately DKK 58 billion (A$12.7 billion) higher than that for companies, which do not purchase design. This equates to approximately 22% above-average growth in gross revenue.*
- *Companies which have experienced an increase in design activity (i.e. in investments in design-related employee training or external procurement of design services) achieve an additional 40% gross revenue increase compared to companies where design activity is either constant or has decreased.*
- *Companies that employ design professionals and purchase design externally export 34% of their turnover on average compared to 18% by companies that have adopted a different design purchasing behaviour or none at all.*
- *There is positive correlation between design and employment since job creation is higher in companies that employ design compared to companies with no design activity.*
- *Gross revenue performances are better and exports are markedly higher the higher on the "design ladder" that companies rank.*
- *The survey identifies approx. 50% of companies with a minimum of 10 employees as non-design companies whereas only a minority (approx. 6%) have a solid design base. Accordingly, there is great economic potential for society as a whole in enhancing the design behaviour of business.*

Source: *Kretzschmar, A., The Economic Effects of Design September 2003 Danish Design Centre*

1. http://www.ebst.dk/file/1924/the_economic_effects_of_designn.pdf

3.6 THE DIFFERENCES BETWEEN SPECIALIST AND EMBEDDED DESIGNERS

The design function is performed by trained and experienced designers whose services could be obtained either under a project based contract through the relevant specialist firm or else through employment within the organizations that are part of general industry, education and government segments. "Design" as an occupation is one of the most "horizontal" of the creative activities, meaning there are more people employed in the occupation within general industries than there are within the relevant specialist (often consulting) industry. On average there are three embedded designers working outside of the specialist design industry firms for every two specialists working within it.

What determines whether a design function is specialist or embedded? The analysis of the census data of the various occupations employed within design industries and the industry of employment of design occupations clearly demonstrates that the clients frequency of use of a design function determines the decision to adopt a specialist or embedded approach.

Most architects (86%[1]) are employed within specialist architecture firms servicing multiple clients over a year. The normal architecture client may only require the function of architectural design once every three to ten years. Therefore it makes little sense to employ an architect (as an architect) in-house. Of the balance, almost 5% of architects are employed by large building construction firms that have a consistent requirement for architects to design and manage the construction of their suite of buildings. Very often these in-house architectural departments then subcontract out a range of specialist tasks. Having the embedded talent improves the firms ability to control the complexity of the projects and provide the continuity that is essential to grow corporate intellectual property and to manage risk.

Graphic design on the other hand is a function that is required by most organisations almost every day and this is reflected in the significant proportion (75%) of the graphic design function being employed by industries other than in the specialist Commercial Art and Display Industry.

Similarly, Fashion Designers are predominately (64%) employed within clothing manufacturing firms, wholesalers or within specialist retailers. There are very few (5%) employed as specialist stand-alone fashion designers within 7869 Business Services.

1. Employed within occupation 212111 Architects for 2001 Census

There are differences too in the benefits or contribution made by specialist and embedded designers. On the whole specialist designers may work across a number of disciplines involving different marketplace needs for a range of clients. They therefore bring innovations learnt in one market, technology or material and can apply it to their current client's problem. Specialist design firms therefore potentially increase the degree of cross sectoral innovation.

Embedded designers on the other hand can work within the same firm for a number of years and will better understand its needs and those of its customers. In many ways an in-house designer is able to work more closely with manufacturing, marketing or management than a specialist designer contracted in for a specific project.

However, the external specialist is often separated from the politics and day to day dynamics of an organisation and is therefore able to avoid the "group think" that constrains some strategic decision making within a firm. Combined with the formal design process that systematically looks at the problem from many directions, external design specialists can be a valued contributor to organisational competitiveness.

For a firm whether the design function is external through specialist consultancies or embedded is not the critical factor in determining its performance, the research indicates that it is how committed the firm is to focusing the efforts of all the stages, the design, manufacturing, marketing and fulfilment functions on the requirements of the customer and user.

The 2003 Danish study[1] found that "Companies that only purchase design externally achieve gross revenue growth rates that are twice as high as those companies that do not purchase design. Companies that employ design professionals have a slightly higher advantage, and companies that employ design professionals as well as purchasing design externally achieve marked better results." The best strategic return therefore would seem to come from having a strong internal design department and design culture while also utilising external design specialists.

The design process that these teams follow, whether applied to the construction of buildings or the manufacture of clothing, brochures, consumer goods or medical instrument, will involve addressing and reconciling a range of often conflicting factors including:

- design for ease of manufacturing and the cost of materials
- design for ease of distribution, storage and handling
- design for marketability and merchandising to existing and new customers

1. Kretzschmar, A, (2003) <http://www.ebst.dk/file/1924/the_economic_effects_of_design.pdf>

- design for emotional and aesthetic appeal
- design for functionality, performance and price point
- design for usability and interaction
- design for efficient integration with other processes or products
- design for reliability, cost of ownership and efficient repair
- design for recycling

3.7 PRODUCT AND SERVICE DIFFERENTIATION

The ability for firms to differentiate their product or service from those of their competitors is becoming increasingly critical as price based competition can always be won by the firms of developing nations who enter international markets with low manufacturing costs.

In addition to the traditional factors that design needs to reconcile two new factors have emerged as being very important in product differentiation in the marketplace: User Oriented Design and Emotional Design.

The importance of User Oriented Design

According to Robert Veryzer et al.[1], user oriented design involves balancing commercial concerns (e.g., target marketing, price points) and market realities with the delivery of a set of capabilities or functionalities, in the form of an integrated product.

Table 7: Comparison of User-Centred and Traditional Approaches

Traditional Approach	User Centred Design
Technology driven	User driven
Component focus	Solutions focus
Limited multi-disciplinary cooperation	Multi-disciplinary team work
Focus on internals architecture	Focus on externals design
No specialization in user experience	Specialization in user experience
Some competitive focus	Focus on competition
Development prior to user validation	Develop only user validated designs
Product defect view of quality	User view of quality
Limited focus on user measurement	Prime focus on user measurement
Focus on current customers	Focus on current and future customers

Source: Karel Vredenburg, Scott Isensee, Carol Righi, User-centred design: an integrated approach, 2002, Prentice Hall PTR, Upper Saddle River NJ, 0130912956, as quoted in Veryzer R., Borja de Mozota B., (2005)

1. Robert W. Veryzer and Brigitte Borja de Mozota, The Impact of User-Oriented Design on New Product Development: An Examination of Fundamental Relationships; Journal of Product Innovation Management 22 (2), 128-143. doi: 10.1111/j.0737-6782.2005.00110.x

By placing the emphasis on the needs of the user many of the factors involving trade-offs become secondary. The art of user centred design is clearly to be in being able to profitably build and deliver a product that has been designed from the users point of view.

The importance of Emotional Design

Don Norman in ***Emotional Design: Why We Love (or Hate) Everyday Things***[1] explored the role of aesthetics in product design. He was struck by the findings of two Japanese researchers, Masaaki Kurosu and Kaori Kashimura1 who had developed two forms of automated teller machines (ATM). Both forms were identical in function, the number of buttons, and how they worked, but one had the buttons and screens arranged attractively, the other unattractively. The research results showed that the attractively designed ATM was easier to use despite having identical functionality. These findings have been replicated in a range of studies and across many cultures. The effect seems to be universal.

Norman postulated that attractive things make people feel "good", which in turn makes them think more creatively. Happy people are more effective in finding alternative solutions to the challenges or problems that inevitably arise in the course of using a product and, as a result, are tolerant of minor difficulties. They are able to almost seamlessly proceed with their task without being disrupted or irritated by them.

The effect of emotional design is now seen in the choice of motor cars, consumer devices such as cameras, computer software and operating systems, the success of the iPod and the delivery of personal and business services through web pages.

When all basic functional needs are being met by even the cheapest or entry level products then differentiation (and success) in the market will be determined by the degree to which products and services are able to fulfil customers higher and often more intangible needs such as Maslow's [2] forth level ego or esteem needs and the fifth level self -actualization needs. This is not an area where engineers are comfortable, but designers, melding as they do science with art, excel.

Relevance

The trained and skilled designer is a synthesis of performance and visual artist, psychologist, scientist and engineer. Their skills will be essential to integrate these factors into manufacturing and business

1. Donald A Norman, Emotional Design: Why We Love (Or Hate) Everyday Things, 2004, Basic Books, Park Avenue Sth NY, 0465051367, <http://www.amazon.com/exec/obidos/tg/detail/-/0465051367>
2. Maslow, Abraham. 1954. Motivation and Personality. New York: Harper & Row.

3.8 DESIGN AND EXPORTS

The Mapping Queensland's Creative Industries: Economic Fundamentals showed that specialist design firms do not, on the whole, export their services. This is not surprising as it is their clients, the manufacturers, that export. And the direct impact of the level of investment and the quality of design on the exports by manufacturers is clearly evident in the recent Danish study[1].

The researchers found a strong statistical correlation between manufacturing firms position on the design ladder, in other words their level of commitment to design, and the proportion of their overall revenue that comes from exports.

Table 8: The placing of companies on the design ladder in relation to export

Step on the Design Ladder	Average % of turnover	Number of firms
Step 4 Design as innovation	26.34%	131
Step 3 Design as process	22.67%	330
Step 2 Design as styling	16.48%	125
Step 1 Non-design	12.21%	342
Total	18.5%	927

Source: *Kretzschmar, A, (2003) <http://www.ebst.dk/file/1924/the_economic_effects_of_design.pdf>*

According to the report "There are marked differences regarding exports according to the step on the design ladder. The export share of turnover is considerably larger in companies on the highest level than for those companies that do not employ design - and the share rises progressively according to the design-ladder level." The difference between group 1 and 2 seen as a whole and group 3 and 4 are statistically significant.

The message is clear for government's wanting to grow the exports of their manufacturing sector: substantially increase the proportion of its manufacturers investing at the top of the design ladder: step 4 "Design as Innovation" and step 3 "Design and Process".

1. *Kretzschmar, A, (2003) <http://www.ebst.dk/file/1924/the_economic_effects_of_designn.pdf>*

3.9 CONCLUSION

Architects, photographers, fashion designers, industrial and graphic designers are the experts in implementing the design process to creatively solve the client's brief of requirements. In doing so they will address not just the technical requirements of a project but also its functional, aesthetic, marketing and efficiency requirements. It is therefore important that Queensland business is able to move up to the higher rungs of the design ladder, from being on step "0" or step "1" being "non users of design" or utilising "design as styling" to where the majority are continuously investing in "design as process" and "design as innovation".

Increasing the frequency and quality of use of professional design skills by Queensland's manufacturing sector in its broadest definition could substantially improve its ability to increase its share of the domestic market, to increase its interstate trade and to grow its exports.

Conservative small or medium sized manufacturers should be encouraged to work closely with specialist design consultancies to develop new products and new processes for bringing products and services to market. Larger manufacturers should be encouraged to develop a strong internal design culture which would utilise specialist designers to augment the skill base and stimulate the group's creativity from the cross-fertilisation of different fields of knowledge and experience.

SECTION 4: OVERVIEW OF THE DESIGN SEGMENT

For the purposes of this report the Queensland Creative Industry Strategy Design segment is defined as consisting of those involved in the creation, publishing and pre-creation stages of the design value web. The occupations and industry activities that are within scope are: Architecture, Photography, Landscape Architecture, Naval Architecture, Urban and Regional Planning, Visual Arts, Fashion Design, Industrial Design, Illustration and Design, Jewellery Design, Design Conservation and Interior Design. People who are employed as "Designers" - design occupations corresponding to design sectors as defined in this report - are present in 260 out of the possible 400 categories of industry activities across the Australian and Queensland economy. Furthermore 60% of the employment for design occupations occurs outside of specialist design industry sectors.

4.1 EMPLOYMENT IN DESIGN

The total employment within the Design Segment of the Queensland Creative Industries was estimated in the 2003 Queensland Creative Industry Strategy to be 5,470 people. This figure, however, only captures the employment within the two design relevant industrial activities within the Australian and New Zealand Standard Industrial Classification (ANZSIC). Measuring design purely on the basis of the ANZSIC industry fails to take into account the substantial numbers of designers embedded across the broader economy.

CIRAC's research of much more detailed industry and employment tables from the 2001 census has shown that the influence of the design segment is much greater than this with 11,191 people employed in a wide range of industries and occupations across the economy.

Figure 5: Queensland's Design Employment Trident for 2001

2001 Queensland		Industry of Employment: Design Industries employ	Non-design Industries employ	Total employed in all industries	% of employment within design
Occupation of Employed	Design occupations	3,365	6,445	9,810	34.3%
	Non-design occupations	2,185		2,185	
	Total employed in all occupations	5,550	6,445	**11,995**	46.3%
		60.6%		81.8%	

The Queensland Design Trident above shows that of the 9,810 people employed as designers in 2001 3,365 were employed in the specialist design industries and 6.445 were employed (embedded) in non-design industries.

Design was also directly responsible for the employment of 2,185 non-design (or support) occupations within Design industries.

Between 1996 and 2001 there was a 10% increase in the design trident total employment from 10,866 through the expansion of embedded employment of designers.

Figure 6: Queensland's Design employment Trident for 1996

1996 Queensland		Industry of Employment: Design Industries employ	Non-design Industries employ	Total employed in all industries	% of employment within design
Occupation of Employed	Design occupations	3,553	5,164	8,717	40.8%
	Non-design occupations	2,149		2,149	
	Total employed in all occupations	5,702	5,164	**10,866**	52.5%
		62.3%		80.2%	

The 25% increase in the employment of designers in non-design industries was muted by the 5% reduction in the numbers of designers in design industries. There was also a small (1.6%) change in the level of employment of support staff.

Figure 7: Changes in Queensland's Design Trident between 1996 and 2001

growth in employment 1996 -2001		Industry of Employment		
		Design Industries employ	Non-design Industries employ	Total employed in all industries
Occupation of Employed	Design occupations	-5.29%	24.81%	12.54%
	Non-design occupations	1.68%		1.68%
	Total employed in all occupations	-2.67%	24.81%	**10.39%**

THE VALUE OF EMPLOYMENT

The people in the Queensland Design trident generated almost $400 million in direct salaries and wages in 2001 based on the median incomes that people in the occupations declared in the census. If the normal salary on-costs for a firm of 20% are included then the total value of the design employment would be $475 million.

Figure 8: The value of salaries and wages in Queensland's Design Trident for 2001

2001 Queensland		Industry of Employment: Design Industries employ	Non-design Industries employ	Total employed in all industries	% of employment within design
Occupation of Employed	Design occupations	$140,566,140	$194,202,372	$334,768,512	42.0%
	Non-design occupations	$56,623,528		$56,623,528	
	Total employed in all occupations	$197,189,668	$194,202,372	$391,392,040	
		71.3%			

The 2001 total earnings represents a 38601% growth over 1996 earnings with a 60% growth in embedded design earning. There was a 25% overall growth in median incomes.

Figure 9: The change in value of salaries and wages in Queensland's Design Trident between 1996 and 2001

growth in wages 1996 -2001		Industry of Employment: Design Industries employ	Non-design Industries employ	Total employed in all industries
Occupation of Employed	Design occupations	30.3%	59.7%	45.9%
	Non-design occupations	4.9%		
	Total employed in all occupations	21.9%		**38.1%**

The variability in the growth rate in total earnings is partially a result of the changes in level of employment as well as changes in the median income of each quadrant.

Figure 10: The change in the median income in Queensland's Design Trident between 1996 and 2001

Change in Median Income		Industry of Employment		
		Design Industries employ	Non-design Industries employ	Total employed in all industries
Occupation of Employed	Design occupations	37.6%	28.0%	29.7%
	Non-design occupations	3.2%		3.2%
	Total employed in all occupations	25.2%	28.0%	25.1%

There was an overall increase in the median income in the design trident of 25% over the five years to 2001.

4.2 DESIGN'S WHOLE OF ECONOMY EFFECTS

The effect of the design trident is felt across the whole Queensland economy. In 2001 almost 1% of the Manufacturing (C) division, 1.1% of Government Administration and Defence and 4.4% of Property and Business Services is made up of those involved in design either as designers or in supporting designers.

Table 9: The Contribution of Design to Queensland's employment by Industry Divisions 2001

Industry Division	Total employed within Division	Total Design Trident Employment		Specialist Design Industry	Embedded Designers	
A Agriculture, Forestry and Fishing	76,532	23	*0.03%*		23	*0.03%*
B Mining	19,286	6	*0.03%*		6	*0.03%*
C Manufacturing	167,380	1,554	*0.93%*		1,554	*0.93%*
D Electricity, Gas and Water Supply	12,359	26	*0.21%*		26	*0.21%*
E Construction	111,209	416	*0.37%*		416	*0.37%*
F Wholesale Trade	79,718	177	*0.22%*		177	*0.22%*
G Retail Trade	239,615	716	*0.30%*		716	*0.30%*
H Accommodation, Cafes and Restaurants	88,381	32	*0.04%*		32	*0.04%*
I Transport and Storage	77,587	98	*0.13%*		98	*0.13%*
J Communication Services	23,016	17	*0.07%*		17	*0.07%*
K Finance and Insurance	44,562	9	*0.02%*		9	*0.02%*
L Property and Business Services	153,864	6,451	*4.22%*	5,550	901	*0.59%*

Table 9: The Contribution of Design to Queensland's employment by Industry Divisions 2001

Industry Division	Total employed within Division	Total Design Trident Employment		Specialist Design Industry	Embedded Designers	
M Government Administration and Defence	75,048	836	*1.11%*		836	*1.11%*
N Education	118,896	86	*0.07%*		86	*0.07%*
O Health and Community Services	151,029	41	*0.03%*		41	*0.03%*
P Cultural and Recreational Services	37,341	214	*0.57%*		214	*0.57%*
Q Personal and Other Services	57,662	362	*0.63%*		362	*0.63%*
Z Not Stated	27,927	59	*0.21%*		59	*0.21%*
R Non-Classifiable Economic Units	7,452	27	*0.36%*		27	*0.36%*
Designers employed in other Creative Segments		845			845	
Grand Total	1,568,864	11,995	*0.76%*	5,550	6,445	*0.41%*
Proportion of Trident total		*100%*		*46.3%*	*53.7%*	

As represented in the table above, 54% of the people in the design trident are employed outside of the specialist design industries and are mostly in manufacturing or government administration.

As would be expected because of the disparity in populations, Queensland (with 18.9% of population) consistently ranks third within Australia for the number of people employed within design occupations (with 16.7% share) behind NSW (35.2%) and Victoria (27.5%).

Table 10: Total number of people employed as Designers by State

	Australia	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Workforce	8,297,404	2,748,396	2,082,216	1,568,864	635,325	828,781	182,522	90,434	160,866
Share of total	100.0%	33.1%	25.1%	18.9%	7.7%	10.0%	2.2%	1.1%	1.9%
Total Design employment	58,100	20,460	15,990	9,810	3,705	5,415	1,104	469	1,204
Share of total	100.0%	35.2%	27.5%	16.9%	6.4%	9.3%	1.9%	0.8%	2.1%
Density	700	744	768	625	583	653	605	519	748

When design employment is weighted relative to the size of the workforce by calculating the density of designers per 100,000 of the the workforce, the dominance of NSW and Victoria becomes easier to identify.

Because design is an input into manufacturing and construction industries it is important to determine the degree of correlation between the level of employment of designers and the employment in the downstream industries of manufacturing and construction.

Table 11: Comparison of New South Wales, Victorian and Queensland total employment of manufacturing, construction and designers in 2001

	New South Wales	Victoria	Queensland
Employment within Division C Manufacturing	316,113	318,218	167,380
Employment within Division E Construction	189,740	136,454	111,209
Total Manufacturing and Construction Employment	505,853	454,672	278,589
C Manufacturing Density per 100,000 workforce	11,502	15,283	10,669
E Construction Density per 100,000 workforce	6,904	6,553	7,089
Total Manufacturing and Construction Density	18,405	21,836	17,757
Design Occupation Density per 100,000 workforce	744	768	625
Proportion of Design Density to the Manufacturing and Construction Density	**4.0%**	**3.5%**	**3.5%**

Victoria has a higher (43%) density of manufacturing employment (15,283) than NSW and Queensland which are very similar.

Perhaps because of recent population growth, Queensland leads (by 8%) the construction employment density at 7,089. Overall Queensland and New South Wales have very similar densities with Victoria 23% higher.

When comparing the density of designers New South Wales has a 20% higher density and Victoria a 24% higher density than Queensland.

Design to Manufacturing Ratio

Factoring together the densities of manufacturing and construction with the density of designers shows a strong consistency. Victoria and Queensland are both at 3.5% with New South Wales with design density representing 4% of the Manufacturing and Construction Density.

Analysis of the 2001 workforce and design occupations for Canada reveals that the Canadian Design to Manufacturing and construction density proportion is 2.98%.

The forthcoming time series analysis from the CIRAC National Mapping Project will be able to determine if this situation is improving given Queensland's recent efforts to improve the number and competitiveness of its manufacturing and fashion industries.

Interstate Comparisons of specific occupations

Examination of the relative density of the specific design occupations shows that Queensland has broadly equivalent densities to NSW and Victoria. However Victoria has a higher density of Architects, Industrial Designers and Fashion Designers than any other state.

Table 12: Density of Designers per 100,000 of workforce for Australian States for selected sectors

	Total	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Total Design Segment	700	744	768	625	583	653	605	519	748
Architects[a]	213	234	238	183	161	208	135	122	214
Visual_Arts	112	100	116	113	117	115	185	184	105
Photographers	89	95	95	83	79	75	84	75	89
Urban & Regional Planner	66	69	63	66	45	79	64	45	60
Interior Designer	62	73	66	54	53	51	17	10	50
Jeweller	45	50	47	40	46	39	35	15	18
Fashion Designer	31	37	47	17	14	18	13	7	15
Industrial Designer	23	22	32	17	24	21	15	0	15
Landscape Architect	21	23	25	21	13	17	10	9	28
Illustrator	18	23	21	13	17	9	10	7	29
Conservators	17	17	16	10	13	14	28	45	114
Naval Architect	3	3	1	3	2	9	10	0	10

a. Architecture includes Architectural Associates when used for comparison within Australia. International comparisons are made excluding this category.

Source: Analysis of custom ABS cross-tabulations of 2001 census data

Industry support programmes that increase the commercial opportunity for Industrial and Fashion Designers would see an improvement in Queensland's density in these two key occupations as it would attract practitioners from interstate and suitably qualified people to perhaps re-enter the occupation of their training.

REGIONAL COMPARISON OF THE DENSITY OF DESIGN OCCUPATIONS

There is a consistent pattern within Australia where the Capital city and regions closely located to the capital city have much higher densities of designers than the regions of the state more distant from the capital city. The density gap between Brisbane and Sydney or Melbourne (13% lower) is much less then the gap at the state level (23% lower).

Table 13: The Design density at the state, capital and regional level 2001.

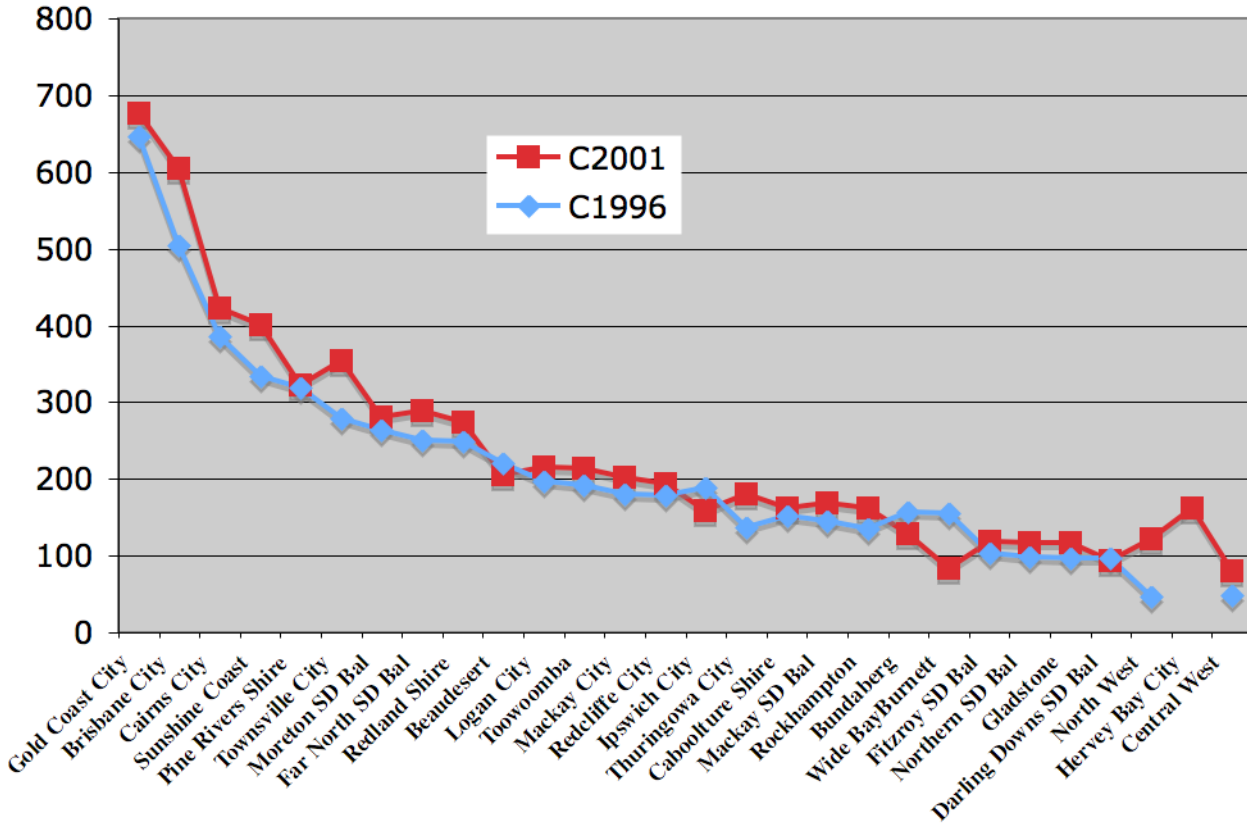
	NSW	VIC	QLD
Density at the State Level	745	768	625
Density at the Capital City Level	1062	1104	989
Density at the regional level close to the capital (Statistical District)			722 Moreton
Density at the region level distant from the capital (Statistical District)	255 Tweed Valley		589 Far North

Source: Analysis of custom ABS cross-tabulations of 2001 census data at the Statistical District Level

Within Queensland, designers are overwhelmingly located in its south east quadrant but with a strong showing in the far north as well. For a more detailed analysis see "The Location of Design Businesses within Queensland" on page 66.

At the much finer statistical subdistrict level, between 1996 and 2001, Brisbane, the Sunshine Coast, the Gold Coast, Cairns and Townsville City showed good growth in the numbers of designers from fairly high levels. When analysed in terms of the density of designers per 100,000 of the workforce most locations have managed to maintain or increase the density despite the significant increase in the population and therefore workforce of the locations.

Figure 11: The changes in the workforce density of Designers throughout Queensland at the statistical subdistrict level



Source: Analysis of custom ABS cross-tabulations of 1996 and 2001 census data

For further details of the changes to specific sectors please see Appendix A14.4: Locality comparison of the Density of Design Occupations on page 156.

4.3 FINANCIAL SIGNIFICANCE

Queensland designers earnt over $330 million in salary and wages in 2001.

Table 14: Total Design segment earnings based on median Occupation income for each location

	NSW	VIC	QLD	Total Australia
Total Occupation Earnings	$812,270,888	$576,982,484	$333,085,636	$2,133,011,192

Source: Custom ABS cross-tabulation of 2001 census data.

However the earning rate for Designers is lower in Queensland than it is in NSW, or Victoria,

Table 15: Unequal earning power: the ratio of occupation earnings density divided by employment density: 100 is the base line for no bias

Earnings Concentration Index	NSW	VIC	QLD	Total Australia
Architects	106.58	97.77	94.72	106.62

Table 15: Unequal earning power: the ratio of occupation earnings density divided by employment density: 100 is the base line for no bias

Earnings Concentration Index	NSW	VIC	QLD	Total Australia
Photographer's	106.31	99.76	88.69	115.23
Landscape Architect	105.59	95.90	101.19	99.30
Naval Architect	104.07	96.56	87.92	131.01
Urban and Regional Planner	105.93	93.70	98.12	114.97
Visual_Arts	108.86	107.95	90.52	117.38
Fashion Designer	107.68	104.03	79.35	51.68
Industrial Designer	107.87	97.48	94.72	112.76
Illustrator	119.18	89.73	84.36	99.70
Jeweller	101.76	96.82	99.86	102.14
Conservators	104.09	89.34	100.85	110.78
Interior Designer	108.74	99.66	89.77	93.36

Source: Custom ABS cross-tabulation of 2001 census data.

While there is generally a substantial earnings gap between NSW and the other states it is worth noting that Illustrators as shown in the above table earn 30% more in NSW than in Victoria or Queensland.

4.4 THE DESIGN INDUSTRIES

Designers may be employed within their relevant specialist firms or throughout general industry, education and government. Design as an occupation is one of the most "horizontal" of the creative industries, meaning it is more of an occupation within many industries than a specialist free standing industry. As highlighted earlier, there are almost 65% of designers work outside of the specialist design industry firms.

As well, 39% of the employees within the two design specific industries (Architecture Services and Photographic Studios) are people in non-design occupations such as management, sales, IT related and secretarial roles.

Table 16: Breakdown of 2001 employment within the Design Industries of Architecture Services and Photography Services

	Australia	NSW	% of Aust.	VIC	% of Aust.	QLD	% of Aust.
Specialists (Designers in the Design Industry)	20,345 (55%)	7,465 (67%)	37%	5,692 (65%)	28%	3,365 (61%)	17%
Support Staff	11,228	3,696	33%	3,007	27%	2,185	19%
Total	31,573	11,161	35%	8,699	28%	5,550	18%

Queensland's ratio of support staff is similar to that of the other states, although NSW and Victoria have a slightly lower proportion((33% to 39%)

Table 17: Comparison of Annual earnings of occupations employed within the Design Industries of Architecture and Photography

	Total	NSW	% of Aust	VIC	% of Aust	QLD	% of Aust
Specialists (Designers in the Design Industry)	$766,195,872	$294,803,808	38%	$212,384,848	28%	$140,566,140	18%
Support Staff	$426,797,644	$148,110,612	35%	$114,798,112	27%	$56,623,528	13%
Total	$1,192,993,516	$442,914,420	37%	$327,182,960	27%	$197,189,668	17%

In total, design related employment, made up of employment within the specialist design industries as defined by the Queensland Creative Industry Strategy (Architecture Services and Photographic Studios) and designers employed within non-design industries, is 11,995 persons

Designers within specialist Design Industries	3,465
Support roles (Non-designers) within Design Industries	2,185
Embedded Designers within non design industries	6,445
Total Design Trident employment	11,995

4.5 DESIGN INDUSTRIES ECONOMIC FUNDAMENTALS

The recent economic survey and analysis Mapping Queensland's Creative Industries: Economic Fundamentals, conducted by CIRAC and SGS Economics and Planning determined that the Architecture, Visual Arts & Design segment forms a significant component of the Queensland creative industries and, according to estimates prepared as part of this study, is currently worth just over $600 million. It has a value added component of approximately $319 million.

Table 18: Output and Value add of Queensland Creative Segments

Creative Industries Sectors and Segments	Output		Value Added	
	$ million	Share	$ million	Share
Architecture, Visual Arts and Design	$605	17.9%	$319	16.3%
Writing, Publishing & Print Media	$878	26.0%	$479	24.5%
Advertising, Graphic Design and Marketing	$700	20.7%	$432	22.1%
Film, Television and Entertainment Software	$849	25.1%	$476	24.3%
Performing Arts	$217	6.4%	$148	7.6%
Music Composition and Production	$136	4.0%	$104	5.3%

Table 18: Output and Value add of Queensland Creative Segments

Creative Industries Sectors and Segments	Output		Value Added	
Total	$3,384	100.0%	$1,957	100.0%

By far the largest component of the Architecture, Visual Arts & Design segment's inputs are derived from the wholesale trade sector. The flows to each of the next largest industries of accommodation, cafes & restaurants, property and business services, and transport and storage are only approximately one tenth the size of the flows to the wholesale trade sector.

The outputs of the segment are demanded predominantly by the property and business services sector. Exports account for only 13% of outputs, which is the lowest across the creative industries in Queensland. However, anecdotal information gathered by SGS Economics and Planning suggests that the segment's export contribution may be understated. Interviews with selected businesses in the Architecture, Visual Arts & Design segment revealed that some firms provide their services to brokers located in Queensland but whose end client or customer is actually from interstate or overseas.

Imports account for 9% of the Architecture, Visual Arts & Design segment's inputs, which constitutes the fourth highest across the creative sectors, and is slightly above the average of 8% across all the creative industries segments. Therefore, the Architecture, Visual Arts & Design segment relies marginally less on the local economy for its inputs.

4.6 INDUSTRY FLOWS: DEMAND-SIDE MULTIPLIERS

The modelling done by SGS Economics and Planning for the Mapping Queensland's Creative Industries: Economic Fundamentals produced values for the common economic multipliers. Multipliers are most effective when used for contrasting the different degrees of impacts that a range of industries may have.

The design industries enjoy relatively high demand side multipliers when compared to the rest of the economy and they are comparable with other sectors within the Creative industries.

A high output multiplier indicates that the industry in question sources most of its required goods and services from local industries (Queensland in this case). Here, the use of imports is limited, and any investment in these industries will be highly beneficial to the local economy as most of the value of that industry's output is 'captured'

and retained in Queensland. For policy makers, this means potentially more wealth and more jobs for Queenslanders.

Table 19: Demand Side Multipliers for Queensland Creative Industry segments

Creative Industries Sectors and Segments	Demand Multiplier
Architecture, Visual Arts and Design	3.06
Writing, Publishing & Print Media	2.88
Advertising, Graphic Design and Marketing	3.03
Film, Television and Entertainment Software	2.64
Performing Arts	3.06
Music Composition and Production	3.17

Source: Mapping Queensland's Creative Industries: Economic Fundamentals

Design has the second highest demand multiplier of the creative industries, second only to music but substantially higher than Agriculture 2.65, Mining at 2.52 and Manufacturing with a multiplier of 2.84.

4.7 THE LOCATION OF DESIGN BUSINESSES

The analysis of the nature and location of design businesses is complicated by the paucity of reliable and in-depth data. Over the course of this study and the development of CIRAC's data repository, we have investigated several data sources in an attempt to gain fine-detailed industry counts by location, by region. Over the last nine months, CIRAC has been negotiating access to potentially one of the most reliable sources, the detailed level of the Australian Business Register (ABR) counts. Unfortunately the detailed ABR tables were not received in time for detailed analysis in this report.

The Australian Taxation Office publishes annual reports which include broad brush figures on industry turnover, the number of firms, profitability and R&D investment at the state and national levels (4-digit). Unfortunately, however, the state level analysis is at a 2-digit ANZSIC level of detail and therefore encompasses so many irrelevant industries as to be unrepresentative of the Design segment. Other potential sources of data, such as State Treasury analyses of payroll tax reports and collections, by nature, does not report on the bulk of design employment and self employment within micro-enterprises where payroll is typically below the threshold of $50,000 a month.

Sensis counts of business yellowpages telephone listings, while simplistic, has four significant features which help us understand the business dimensions of Design:

1 It is national in coverage and allows for regional comparisons as all listings are categorised using a standardise methodology.

2 Firm counts are at a postcode level allowing for the finest-level geographical cluster analysis.

3 Counts are available for the past five years allowing trends to be analysed.

4 The classification system is some three to 5 times more detailed than finest-level, standard ANZSIC 4 digit level codings and is based on the marketplace's perception of an organisation's activity. Consequently, Sensis coding is not subject to the need to force fit and submerge newer industries and services into historical categories that may not be appropriate.

However Sensis Yellowpages counts cannot be used without the following caveats:

1 Firm numbers are under counted in some areas: For example many micro-enterprises with strong local or discipline networks are not listed in the Yellowpages. The film industry is a primary example. While film talent, by and large, is not listed in the phone book they are generally listed in the relevant industry directories.

2 counts are simplistic: there is no indication of firm size, turnover or company structure.

3 It contains duplicate entries: where the same organisation may have a number of outlets in separate towns. However, in recent years, effort has made by Sensis to eliminate counting multiple phone lines at the same premises.

Calibrating the counts of business listings available from Sensis against the counts of active registered GST paying businesses from the Australian Business Register shows that the Sensis total is 25% higher. The broader categories of the ABR means that sector to sector comparisons are not possible.

Table 20: Comparison of Queensland ABR registered and Sensis listed businesses

Activity	All ABN registered entities	# of businesses registered for GST	# of Sole Traders registered for GST	Total Firms GST (2005)	Number of Businesses listed with Sensis 2003
Total Architecture					720
Drafting					1,174
Landscape Architect	3,556	1,172	1,076	2,248	1,227
Naval Architect					40
Urban and Regional Planner					232

Table 20: Comparison of Queensland ABR registered and Sensis listed businesses

Activity	All ABN registered entities	# of businesses registered for GST	# of Sole Traders registered for GST	Total Firms GST (2005)	Number of Businesses listed with Sensis 2003
Fashion Designer					113
Interior Designer					818
Total Photography	2,905	379	814	1,193	1,620
Industrial Designer					116
Jewellery Design/Manufacture	634	160	185	345	254
Furniture Design					296
Painter (Visual Arts)	7,160	245	1,709	1,954	528
Sculptor					48
Total Queensland Design Segment	14,255	1,956	3,784	5,740	7,186
Designers and Illustrators	3,850	731	1,174	1,905	827

Source: Analysis of custom Australian Business register and Sensis tables

The Sensis Yellowpages counts are useful for showing the trends at the finest geographic and coding levels of detail.

Table 21: Growth in Number of Design business listings over Five Years by State

Design	Average Growth Rate in listings	1999	2000	2001	2002	2003
Australia Total	0.98%	37,857	37,715	39,110	39,686	38,787
NSW	4.5%	13,616	13,600	14,201	14,284	14,161
VIC	8.8%	9,665	9,769	10,503	10,687	10,459
QLD	2.2%	7,206	7,152	7,457	7,490	7,186
SA	-4.5%	2,453	2,379	2,291	2,348	2,268
WA	-1.8%	3,163	3,089	2,972	3,123	3,017
TAS	-0.3%	632	669	630	659	638
NT	-8.9%	311	275	275	265	269
ACT	1.6%	811	782	781	830	789

Source: Analysis of custom Sensis business listings counts

The design industry nationally has grown slowly over the past five years at a rate just under 1%. The total number of design firms grew rapidly in 2001 with an increase of 1,451 firms[1] and further growth in

1. When calculated as an average of the first two years subtracted from the average of the last two years.

2002 growing to 39,686, however 2003 saw substantial drop in firm numbers curtailing overall growth for the five year period. The Queensland design industry has grown marginally better than national growth rates at 2.2% or 159 new firms. However, Queensland's rate of growth is well behind Victoria's which has a strong growth rate of 8.8% and a total of 856 new firms and NSW with a growth rate of 4.5% and a total of 615 new firms.

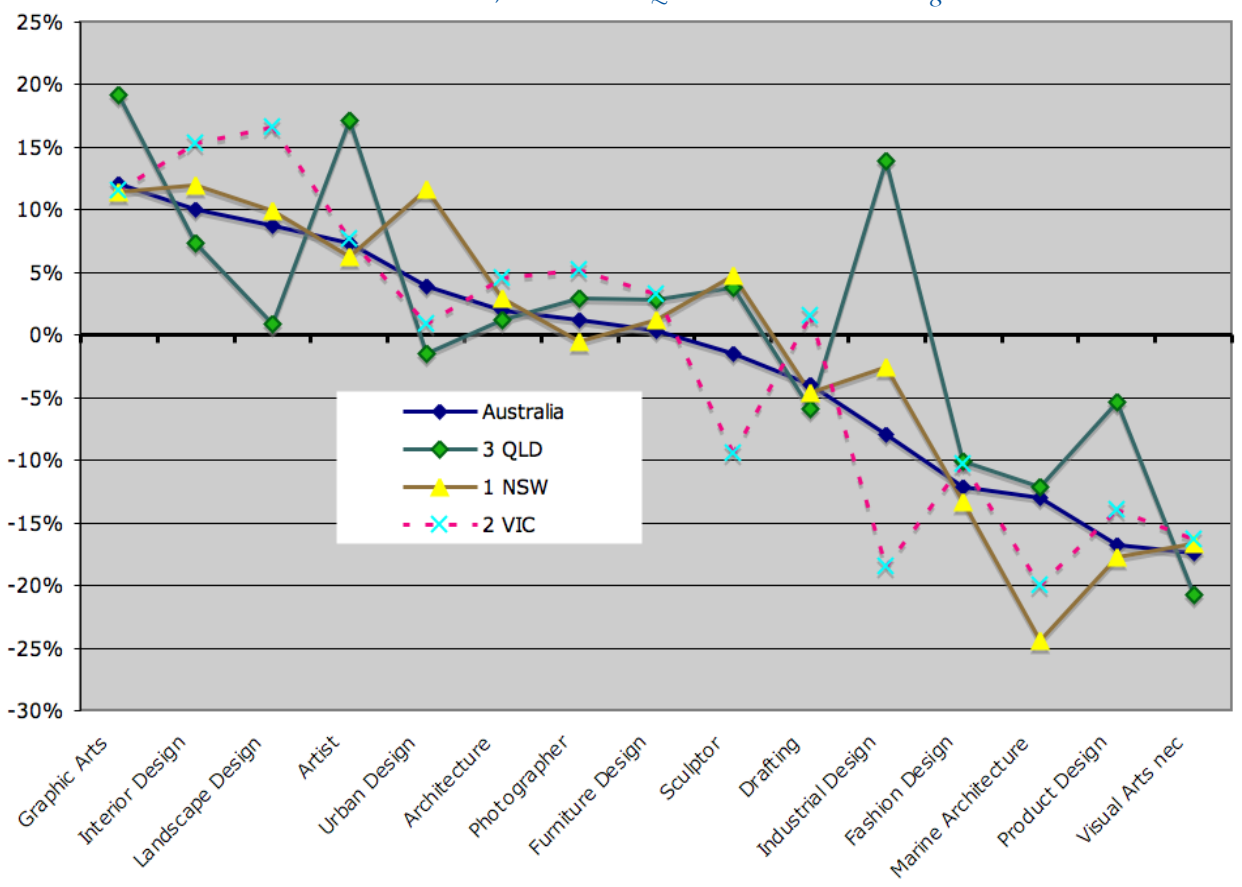
Table 22: Selected States Proportion of Design Businesses in 1999 and 2003

	1999	% Share of Design	2003	% Share of Design
Total Australia	37,857		38,787	
1 NSW	13,388	35.36%	13,943	35.95%
2 VIC	9,665	25.53%	10,459	26.97%
3 QLD	7,206	19.03%	7,186	18.53%

Source: Sensis Yellowpages counts

Queensland's share of total design businesses has shrunk in a market that has increased slightly. When this is examined on a sectoral basis the growth or shrinkage can be more clearly seen.

Figure 12: Comparative growth in the number of businesses over 5 years for Australia, NSW, Victoria and Queensland across 16 design activities



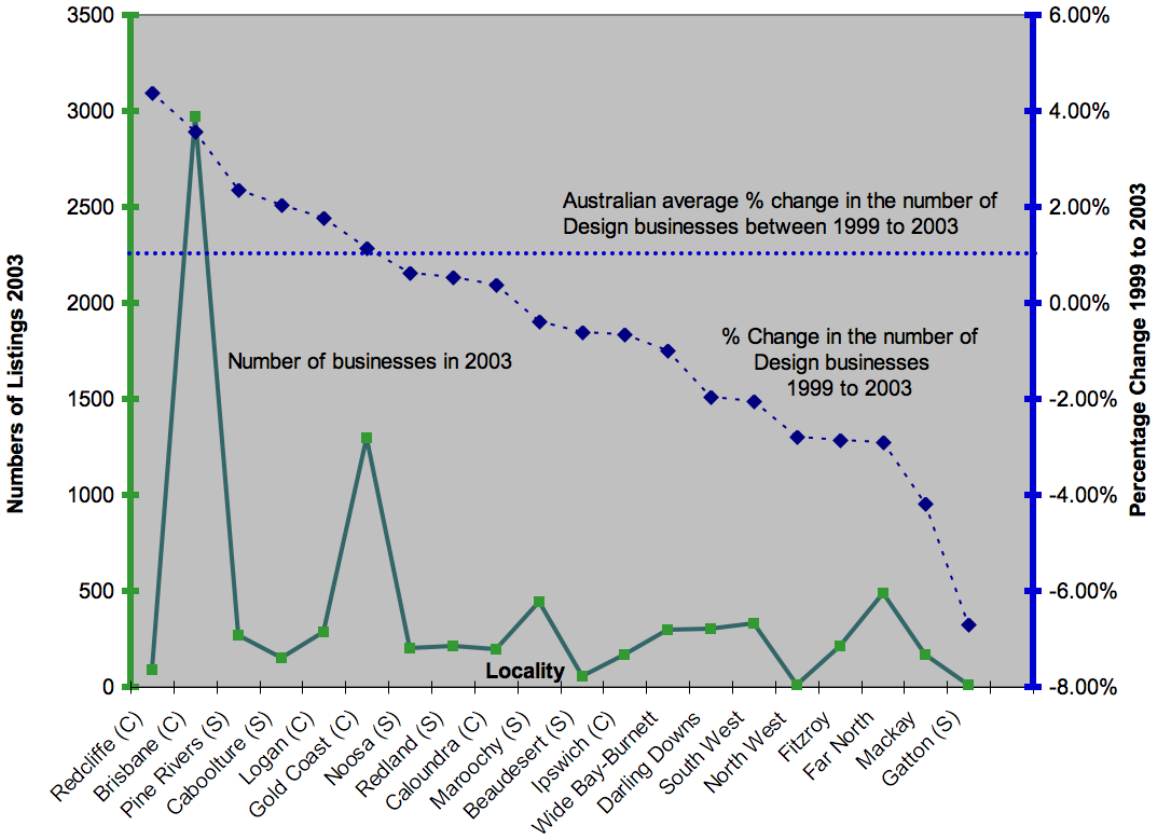
Source: Analysis of custom Sensis business listings counts

There has clearly been a substantial growth in Jewellery Design and some growth in Interior Design, Landscape Artists and sculptors. Queensland has done comparatively well in Product and Industrial Design. When the individual discipline areas are examined the domination of NSW and Victoria becomes more clear with Queensland leading growth rates in the discipline areas of Industrial Design and Artists.

THE TRENDS WITHIN QUEENSLAND

Analysis of the Sensis business listing over the 5 years from 1999 to 2003 shows that a number of Queensland regions including Far North, Beaudesert and Noosa had good growth rates in the numbers of total design business listed. Regions showing a decline South West, Pine Rivers and Wide Bay Burnett.

Figure 13: The growth in the numbers of Design Businesses within major Queensland locations



Source: Analysis of Sensis Yellowpages counts

The industry concentration in Queensland's south east corner is increasing with Brisbane (with approximately 3000 businesses) and the Gold Cost (almost 1,300 businesses) domination of the numbers of business listed accounting for 48.5% of total of the Queensland localities in 1999 rising to 52.2% in 2003.

Redcliffe, Brisbane, Pine rivers and Caboolture also showed higher rates of growth in the number of businesses 1999 and 2003 than the rest of Queensland and the Australian average rate of 1.2%.

4.8 PEOPLE WORKING IN QUEENSLAND WITH DESIGN QUALIFICATIONS

CIRAC analysed the Australian Bureau of Statistics data for the 2001 census looking at people who qualified in various design related disciplines and their industries of employment. Separate tables of design qualifications and their occupations of employment were also obtained.

Qualification data from the census is useful as it can indicate the unemployment rate and workforce participation rates for disciplines unlike occupation data which only counts the occupations of current employment. The participation rates of the various design disciplines are analysed in the individual discipline reports in the appendices <see "Statistical Appendices: Table of Contents" on page 2>.

Table 23: Number of people with Design qualifications in Australia, NSW, Queensland and Victoria[a]

Total Workforce	8,297,404	2,748,396	2,082,216	1,568,864
	Australia Total	NSW	VIC	QLD
Total Employed People Qualified in Design	82,697	30,823	23,669	11,526
Total Qualification Density	997	1,121	1,137	735

a. For the details of the individual qualifications see Appendix see Appendix A14.5: Interstate Comparison of the people with Design Qualifications on page 159

Source: Analysis of custom ABS cross-tabulation of 2001 census data

In comparison to NSW and Victoria, Queensland has similar density of Urban & Regional Planners and Interior Designer per 100,000 workforce. However, the density of qualified Fashion designers, industrial Designers, Illustrators, Conservators are well below rates in NSW and Victoria.

In other sectors Queensland has a comparable density of qualified interior designers to NSW, with 50 and 53 respectively, but well behind Victoria with 75; not surprisingly Queensland leads the density of qualified Naval architects; qualified Jewellers is comparable to both NSW and VIC, while the number of visual artists with 78 is low in comparison to NSW at 116, and closer to Victoria with 86.

Table 24: Comparison by State of the percentage of qualified people employed in the specialist industry of their qualification[a]

	Australia Total	NSW	VIC	QLD
Total	30.98%	31.51%	30.31%	32.67%

Table 24: Comparison by State of the percentage of qualified people employed in the specialist industry of their qualification[a]

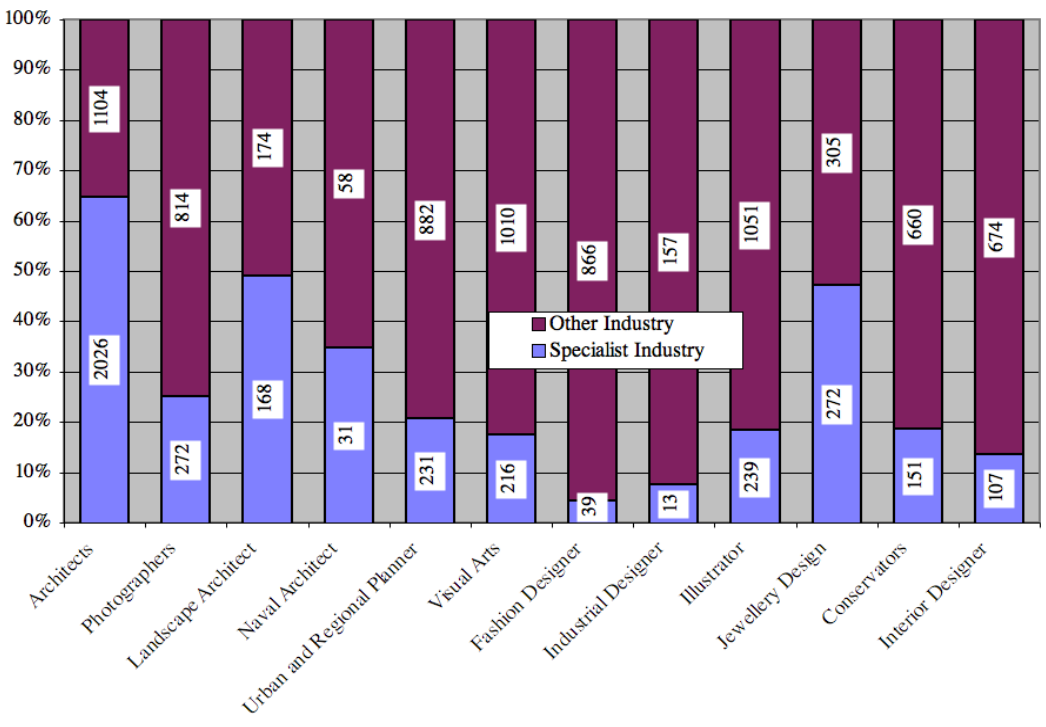
	Australia Total	NSW	VIC	QLD
Architects	59.68%	58.43%	62.15%	64.73%
Landscape Architect	44.12%	40.39%	47.98%	49.12%
Fashion Designer	4.37%	5.49%	3.37%	4.31%
Industrial Designer	8.06%	8.67%	6.36%	7.65%

a. For the details of the individual qualifications see Appendix see Appendix A14.7: Interstate Comparison of the Specialisation Rate of Design Qualifications on page 161

Source: Analysis of custom ABS cross-tabulations of 2001 census data

The table of relevant design qualifications and the industry of employment show a wide variation in the proportion of people employed in the specialist industry for which they are qualified.Qualfieid architects are highest at 65% with fashion designers lowest at 4%.

Figure 14: Proportion of people in Queensland qualified within design disciplines working within an industry in their field



Source: Analysis of custom ABS cross-tabulation of 2001 census data

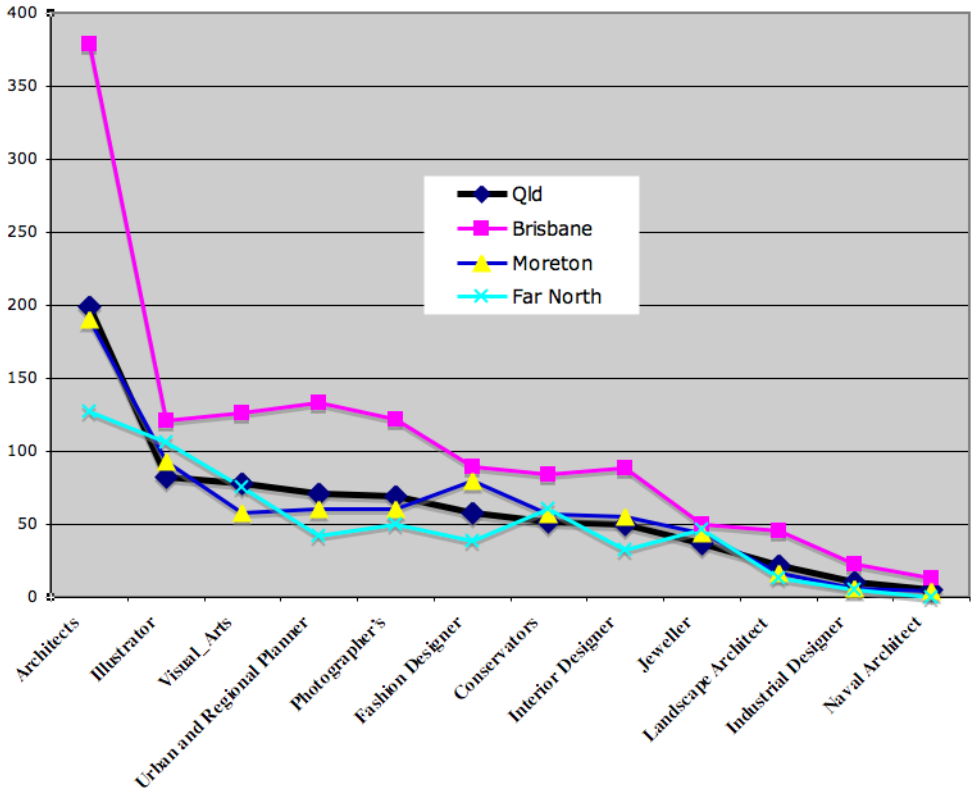
The percentages of design qualified employees working within the specialist industry of their qualification are remarkably similar with only a maximum of a 10% different between trends across the three states and the Australian total. Overall though, Queensland was the state with the highest percentage of design qualified employees working within the specialist industry of their qualification with a

percentage of 32.67%, two percentage points above the Australian total and ahead of both NSW with 31.51% and Victoria with 30.31%. Queensland also leads the number of qualified architects working in the industry of their qualification with 64.73%, above NSW with 58.68% and VIC with 62.15%; rates of Landscape Architects with 49.12% leading NSW 40.80% and VIC with 47.98% and finally leads the rates of qualified jewellers in their specialist industry of qualification with 47.14%, over NSW 39.86% and VIC 35.76%

4.9 REGIONAL COMPARISON OF THE DENSITY OF DESIGN QUALIFICATIONS

Similarly to the concentration of Design occupations, people with design qualifications are overwhelming located in the Brisbane and Moreton regions. (The purple and dark blue lines below.)

Figure 15: Regional breakdown of the density of selected Design Qualifications



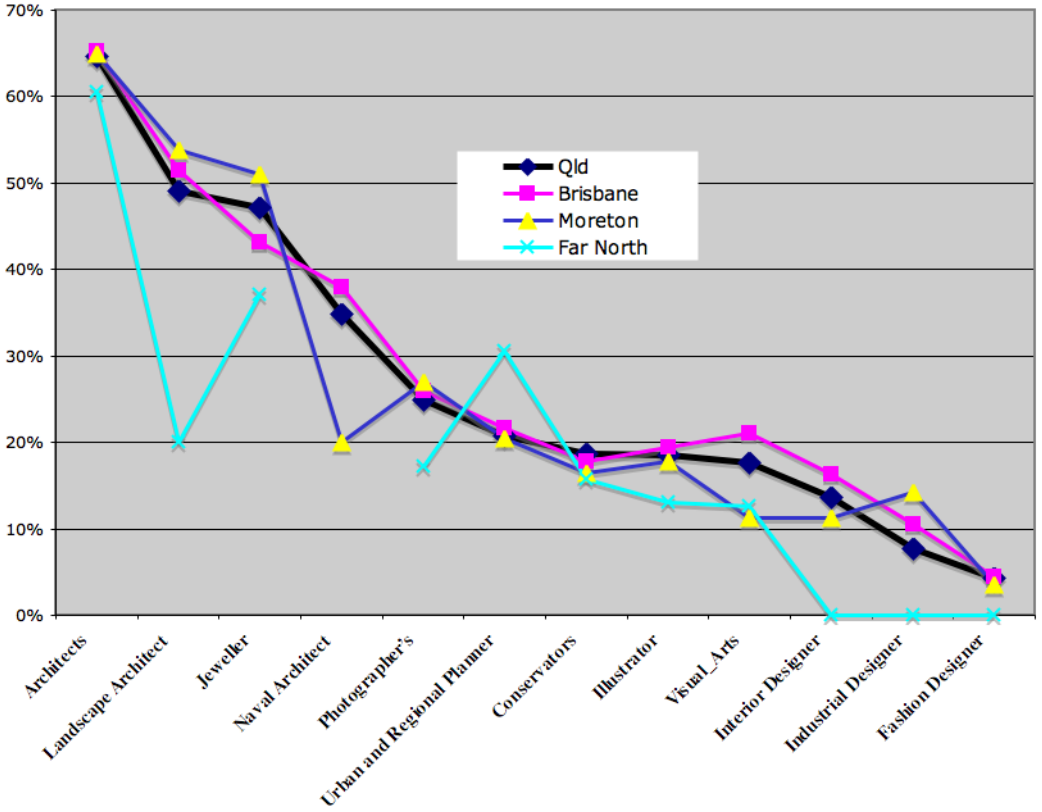
Source: Analysis of custom ABS cross-tabulation of 2001 census data

Brisbane has a higher density across all qualifications, with Moreton close on average to the Queensland density.

There is some variability in the regional and sectoral patterns of the proportion of those who qualified as designers in various disciplines and their employment in core relevant industries. For instance while approximately 55% to 65% of Architects are employed in their respective industry irrespective of location (and to a lesser extent jewellery design) Landscape Architecture has a low core employment

in Far North (around 20%) and relative high 50% in other regions. Conversely Urban and Regional planning graduates have higher core employment in Far North (30%) than Brisbane or Moreton (20%).

Figure 16: Proportion of Design Qualifications employed in their specialist industry for Queensland regions



Source: Analysis of custom ABS cross-tabulations of 2001 census data

For the details of the individual qualifications see Appendix see Appendix A14.8: Regional Comparison of the Density of Design Qualifications on page 162.

Table 25: Queensland Regional comparison of the number and density of persons qualified as Designers by discipline

	Brisbane		Moreton		Far North	
	Total	%	Total	%	Total	%
Total Employed People Qualified in Design	7043	61%	2324	20%	691	6%
Total Qualification Density	1277		726		599	

Source: Analysis of custom ABS cross-tabulation of 2001 census data

4.10 CONCLUSION

Overall Queensland has competitive levels of people with design qualifications and people employed as designers but in part this is because of the strong building and construction sector driving the demand for Architects and its related disciplines.

In comparison to Victoria and NSW, Queensland does seem to require additional industrial and fashion designers to drive the innovation and competitiveness of the dependent manufacturing industries. The concentration of these designers in the south east quadrant and in the far north of the State means that designers are located near the manufacturing businesses that will be their clients.

SECTION 5: INTERNATIONAL BENCHMARKS

The recent increase in the understanding of the significance of the design sector to the vitality of an economy has resulted in many countries researching the size of their segment and developing strategic plans for increasing the competitiveness of their manufacturing sector through design.

There are often differences in the methodology and the definitions of the make-up of "design" between countries: for instance the Victorian study scales up the results of a survey of design firms and general businesses to estimate the size of the sector, and the Hong Kong study uses industry categories that are very broad and encompass many support or downstream activities. Despite these differences there is significant value in comparing the size and especially key ratios of the design segment of other regions and countries as this better puts into to relief the Queensland characteristics.

The basis of selection

The studies were selected for a range of reasons:

Location	Comment
Victoria	The 2003 Victorian State of Design reports were the most thorough analysis of design within Australia conducted and especially relevant as Victoria has traditionally been the leader in design in Australia
United Kingdom	The UK has a strong reputation internationally for its design excellence and the industry has been well studied for the last 8 years through primary and secondary analysis
Canada and specifically, Ontario	Canada and it most populous region, Ontario, are often considered as demographically and economically similar to Australia. They also have to compete with the economic giant to their immediate south. Their policies and characteristics have lessons for Queensland in its relationship with NSW and Victoria as well as Asian based manufacturers
Singapore	Singapore's government is targeting the strategic importance of design to enable its manufacturing sector to better compete with newly emerging low cost manufacturing economies in the region.
The USA	The USA has been the worlds major producer of designed products. While no specific report on the segment was available the statistics available from the US Department of Labour Statistics were useful for establishment of a comparable dataset.
New Zealand	New Zealand conducted a range of creative industry studies in 2002 and 2003 including one on the economic impact of the creative industries. Studying New Zealand is useful because of its cultural and industrial similarity to Australia and similar population size to Queensland.

Location	Comment
Hong Kong	The HK Baseline study was notable for the breadth of its coverage of the economy and the use of a range of relevant economic and employment measures. Segments aligning broadly to the QCIS definition of design were extracted from the HK Baseline

5.1 VICTORIA

The Victorian Definition of Design

"Design reflects the cultural contexts in which it operates - not merely high fashion or cutting edge architecture, but also the everyday spaces and objects of life from household goods, to buildings, aeroplanes, and street signs. Design is capable of being beautiful, but often also has very practical functions."[1]

Table 26: Victorian Design Segment Sub Categorisation (noting discrepancies with Queensland's definition).

Physical	Industrial	Viscom	Other
Architecture Interior Design Urban Design Landscape Design ***Sectors not included in the Queensland definition of design:*** TV, Film & Theatre Set Design	Industrial Design	Visual Communication Corporate Brand Design Exhibition & Display Design ***Sectors not included in the Queensland definition of design:*** Commercial Artists	Textile Design Fashion Design Jewellery Design Furniture Design ***Sectors not included in the Queensland definition of design:*** Computer Software Design Design Management Design Education

In 2003 Victoria commissioned a study by Booz Allen Hamilton and Dandolo Partner of Victorian businesses and their usage of design.

The statistics from the Victorian study do not provide a basis for direct comparison with those for Queensland:

1 The Victorian definition for the scope of the design industry is much wider than that used for the Queensland Creative Industry Strategy as it includes design education, commercial art and display services (included in Advertising in Queensland), computer design (counted within computer services as there are no separate categories for this) and TV and Set design (which

1. Booz Allen Hamilton and Dandolo partners, Victorian Design: Facts And Figures: Developing Victoria's Design Capability, 2003, Department of Innovation, Industry and Regional Development, Melbourne, <http://www.innovation.vic.gov.au/download/design/design_facts_and_figures.pdf>

would be counted within Film and TV production or performing arts as there are no separate categories within the census for this activity).

2 Victorian market size and employment figures are derived by scaling up from the findings of the survey to apply them to all businesses in Victoria. This is not directly comparable to the process of aggregating the census figures for a conservative selection of occupations and industries.

According to the 2003 report[1] the Victorian design segment:

- has direct employment of 67,000 people
- generates indirect employment of 91,100 people
- has total direct and indirect employment of 158,100
- generates $4.8 billion in spending on design services
- the total contribution to economic activity of up to $6.8 billion
- has 3,000 dedicated specialist design organisations
- has over 44,000 firms which use some form of in-house design service

While the Victorian study's definition of the design segment is broader than that adopted by the Queensland Creative Industry Strategy, which makes statistical comparisons difficult, CIRAC has identified over 6,500 firms in Victoria that meet their definition against the 3.080 firms in the report.

Table 27: Comparison of the numbers of firms in Victoria using Victorian definition of design

	Physical	Industrial	Viscom	Other	Total
Victorian State of Design report number of design consultancies	1,320	540	760	460	3,080
CIRAC's count of GST registered firms on the Australian Business Register at September 2005#	3,721		3405	454	7,580
CIRAC's count of businesses listed with Sensis in 2003#	4,027	170	1633	720	6,550

The totals for Sensis and Australian Business Register does not include consultancies in Visual Communication, Corporate Brand Design, Exhibition & Display Design, Computer Software Design,

1. Booz Allen Hamilton and dandolopartners, Victorian Design: Facts And Figures: Developing Victoria's Design Capability, 2003, Department of Innovation, Industry and Regional Development, Melbourne, <http://www.innovation.vic.gov.au/download/design/design_facts_and_figures.pdf>

Design Management and TV, Film & Theatre Set Design. Further there is no ABR data available for industrial/product design.

Table 28: Key figures for Victorian Design Segment

	Physical	Industrial	Viscom	Other	Total
Number of firms using Design services	7,900	12,500	18,200	5,700	44,300
Ave revenue of Design Consultancies	$290,000	$2,400,000	$240,000	$770,000	$799,187
Revenue growth over three years	39.2%	20.1%	31.2%	23.0%	
Sources of revenue: Victorian sourced	92%	36%	90%	57%	
Interstate source	5%	21%	9%	42%	
Overseas source	3%	43%	1%	1%	
Total of Revenue sources	100%	100%	100%	100%	

CIRAC's figures for total employment of design occupations, not including visual arts and crafts, across all industries in Victoria was 8,699 in 2001 and for employment in the design trident being 12,673 (vs 11,774 for Queensland and 16,505 for NSW using the same definition) which is considerably below the Victorian study figure of 67,000.

The Victorian survey found that almost 40% of Victorian medium to large businesses, or 43,000 businesses use design services by either drawing on their own resources (in-house design), or acquiring services from design consultancies. In total, around 8% of all Victorian companies use design services in some way.

Only 16% of firms engaged in the design industries in Victoria export their services and approximately 12.1% of total design consultancy revenues are from exporting. This is slightly lower than total Victorian industry exports of 13.5%.

5.2 UNITED KINGDOM

The initial value of the design segment in the UK was established as part of the UK Creative Industries Mapping Study in 1998[1], subsequently updated in the 2001 Mapping Study[2].

1. Department of Culture, Media and Sport, Creative Industries Mapping Document 1998, Department of Culture, Media and Sport, London <http://www.culture.gov.uk/global/publications/archive_1998/Creative_Industries_Mapping_Document_1998.htm>
2. Department of Culture, Media and Sport, Appendix to Creative Industries Mapping Document 2001, Department of Culture, Media and Sport, London, <http://www.culture.gov.uk/global/publications/archive_2001/ci_mapping_doc_2001.htm>

The UK has seen a substantial growth in the annual revenues attributable to the design segment in the period between the 1998 study and the 2001 study. The 2001 study notes however that there are very few statistics source in common between the two studies so part of the change could be attributable to methodological differences.

Table 29: UK revenue of selected design industries

Revenue	2001 Mapping (A$M)	1998 Mapping (A$M)
Architecture	$4,036	$3,561
Design	$63,386	$28,488
Designer Fashion	$1,424	$1,424
Total Core Design Segment	$68,846	$33,473
Art & Antiques Market	$8,309	$5,223
Crafts	$950	$950
Total Extended Design Segment	$78,105	$39,646

Source: Department of Culture, Media and Sport, Appendix to Creative Industries Mapping Document 2001, Department of Culture, Media and Sport, London, <http://www.culture.gov.uk/global/publications/archive_2001/ci_mapping_doc_2001.htm>

Aggregating a number of the UK's broad industries into a core design segment see a doubling in turnover from A$33,473million to $68,846million between 1998 and 2001. Extending the definition of design to include arts and antiques and crafts which have some degree of relevance to the visual arts sector of the QCIS definition of design see the sector responsible for $78billion in the 2001 study.

Table 30: UK Employment of selected design industries

Employment	2001 Mapping	1998 Mapping
Architecture	21,000	30,000
Design	76,000	23,000
Designer Fashion	12,000	12,000
Total Core Design Segment	109,000	65,000
Art & Antiques Market	37,000	40,000
Crafts	24,000	25,000
Total Extended Design Segment	170,000	130,000

Source: Appendix to Creative Industries Mapping Document 2001

There has been a drop in the employment of architects and a substantial rise in the number of designers. The numbers for Fashion

design are static as they are estimates based on the 5% of the clothing and apparel industries measures.

Table 31: UK Exports of selected design industries

	2001 Mapping (A$M)	1998 Mapping (A$M)
Architecture	$161	$594
Design	$2,374	$831
Designer Fashion	$831	$831
Total Core Design Segment	$3,366	$2,255
Art & Antiques Market	$1,493	$3,086
Crafts	$95	$95
Total Extended Design Segment	$4,955	$5,436

Source: Appendix to Creative Industries Mapping Document 2001

Design showed a substantial growth in the volume of exports growing from $831million to $2,374million driving the core design exports to A$3.3 billion.

Employment and industry statistics issued by the UK Department of Culture Media and Sport in June 2004[1] and an update in June 2005 provide data for estimating the UK design trident and density.

Table 32: Key statistics for selected sectors in the Design segment in the UK

	Year of measure	Total extended Design Segment	Architecture Sector	Designer fashion	Crafts	Art & antiques
Employment in **Design Industry** companies	2003	101,500	79,000			22,500
Employment in **Design Occupations** in businesses **outside** the Creative Industries	2003	246,000	24,100	113,200	108,700	
Total Design Trident Employment	2003	347,500	103,100	113,200	108,700	22,500
Design Trident Density		1,150	341	375	360	74

Source: DCMS, Creative Industries Economic Estimates Statistical Bulletin July 2003 and July 2004, 2003, Department of Culture Media and Sport, DCMS, <http://www.culture.gov.uk/NR/rdonlyres/emxzq6dsmj7dx3rthakvgmseulzzm7hozwuivjqbtr7fwonwkg3fop4x5cbigtp436k2qw4lafq4ghh3z3ykfhtqesa/Creative+Industries+economic+estimates+-+July+03.pdf>

1. *DCMS, Creative Industries Economic Estimates Statistical Bulletin July 2003 and July 2004, 2003, Department of Culture Media and Sport, DCMS, <http://www.culture.gov.uk/NR/rdonlyres/emxzq6dsmj7dx3rthakvgmseulzzm7hozwuivjqbtr7fwonwkg3fop4x5cbigtp436k2qw4lafq4ghh3z3ykfhtqesa/Creative+Industries+economic+estimates+-+July+03.pdf>*

Table 33: Key statistics for selected sectors in the Design segment in the UK

	Year of measure	Total extended Design Segment	Architecture Sector	Design Sector	Designer fashion	Crafts	Art & antiques
Numbers of VAT-based businesses in the creative industries	2002	6,200	3,100		1,300		1,800
Gross Value Added (AUD millions)	2001	$25,924	$8,784	$15,906	$760	$0	$475
% of UK GDP	2001	1.65%	0.50%	1.00%	0.05%	0.07%	0.03%

Source: DCMS, Creative Industries Economic Estimates Statistical Bulletin July 2003 and July 2004, 2003, Department of Culture Media and Sport, DCMS, <http://www.culture.gov.uk/NR/rdonlyres/emxzq6dsmj7dx3rthakvgmseulzzm7hozwuivjqbtr7fwonwkg3fop4x5cbigtp436k2qw4lafq4ghh3z3ykfhtqesa/Creative+Industries+economic+estimates+-+July+03.pdf>

The UK design segment, under a definition that is aggregated from a number of industries to be as close as possible to the Queensland Creative Industry Strategy definition, is responsible for 1.65% of the UK Gross Domestic Product. Design generated employment for over 345,000 people, added A$25billion to the UK economy and generated A$9billion in annual exports. By way of comparison design in Australia generated employment for 64,000 people and provided approximately A$2.5 billion in value add or 0.4% of GDP.

The UK employment data is for employment in design industries and embedded employment of design occupations. Unfortunately data is not available for the total employment for each of the detailed design occupations so the occupation density figures for the UK are not directly comparable to others used in this report. However the UK density figures are equivalent to the total of the Design trident density. Trident density figures are estimated to be 20% to 30% higher than design occupations density.

Table 34: Density of design industry and designers embedded employment for selected UK Design sectors

Density	Architecture Trident	Design & designer fashion Trident	Crafts Trident	Art / Antiques trade Trident	Total UK Design Trident
1995	352	287	417	72	1128
1996	379	305	348	69	1101
1997	337	284	334	71	1026
1998	354	310	418	69	1151

Table 34: Density of design industry and designers embedded employment for selected UK Design sectors

Density	Architecture Trident	Design & designer fashion Trident	Crafts Trident	Art / Antiques trade Trident	Total UK Design Trident
1999	350	322	333	72	1077
2000	349	335	378	71	1133
2001	348	346	387	70	1151
2002	344	385	382	72	1183
2003	341	375	360	74	1150

Source: DCMS, Creative Industries Economic Estimates Statistical Bulletin July 2003 and July 2004, 2003, Department of Culture Media and Sport, DCMS, <http://www.culture.gov.uk/NR/rdonlyres/emxzq6dsmj7dx3rthakvgmseulzzm7hozwuivjqbtr7fwonwkg3fop4x5cbigtp436k2qw4lafq4ghh3z3ykfhtqesa/Creative+Industries+economic+estimates+-+July+03.pdf>

Average design densities have been relatively stable for the UK over the past 9 years but just looking at the total hides the strong growth in Design and designer fashion of 3.4% per annum.

5.3 CANADA AND SPECIFICALLY, ONTARIO

Canada has a substantial and vibrant design segment. According to Statistics Canada the total design services industry made up of specialised design services, landscape architectural services and architectural services generates operating revenue of C$4.2billion in 2003.

Table 35: Canadian design sectors operating Revenue 1999 to 2003

Operating revenue (Canadian $Million)	1999	2000	2001	2002	2003
Landscape architectural services	$123	$139	$142	$161	$177
Specialized design services	$1,634	$1,862	$1,919	$2,042	$2,017
Architectural services	$1,634	$1,862	$1,919	$2,042	$2,017
Total Design Segment	$3,392	$3,863	$3,981	$4,246	$4,210

Source: Statistics Canada <http://www40.statcan.ca/l01/cst01/serv14.htm?sdi=design>

The total segment has grown at 6% year on year with landscape architectural services growing at 11%.

Operating margins are sound being above 10% but there are signs of pressure on margins in recent years.

Table 36: Canadian design sectors operating profit margin 1999 to 2003

Operating profit margin	1999	2000	2001	2002	2003
Landscape architectural services1	14%	18%	15%	13%	13%
Specialized design services2	16%	13%	9%	12%	10%
Architectural services	15%	16%	15%	15%	16%

Overall the design services segment accounts for one third of a percent of the total Canadian gross domestic product.

Table 37: Canadian Design Services Industry Share of GDP

	1999	2000	2001	2002	2003
Design Services Industry Share of GDP		0.36%	0.36%	0.37%	0.35%

Source: Statistics Canada, Gross domestic product, expenditure-basedhttp://www40.statcan.ca/l01/cst01/econ04.htm?sdi=gross%20domestic%20product

The above figures only encompass the design services industries and therefore to do account for the size of design talent that is embedded in the rest of the economy. Meric S. Gertler and Tara Vinodrai[1] produced a report in 2004 for the Ontario Design Industry Advisory

1. Meric S. Gertler And Tara Vinodrai, Designing The Economy: A Profile Of Ontario's Design Workforce, 2004, The Design Industry Advisory Committee, DIAC, <http://www.utoronto.ca/progris/pdf_files/DesigningTheEconomy.pdf>

Committee examining the characteristics, especially employment, of the design segment in Ontario, a major province of Canada

Table 38: Employment in selected Design Occupations in Canada and Ontario

Occupation	Canada	Share of All design	Ontario	Share of All design	Ontario Share of Canada
Architects	12,800	14.05%	5,135	12.82%	40%
Landscape architects	2,410	2.65%	1,095	2.73%	45%
Industrial designers	9,795	10.75%	4,505	11.25%	46%
Graphic designers	44,615	48.97%	20,230	50.51%	45%
Interior designers	11,655	12.79%	5,515	13.77%	47%
Other designers	9,825	10.78%	3,570	8.91%	36%
All Design Occupations	91,100	100.00%	40,050	100.00%	44%

Ontario has a slightly higher proportion of Canadian industrial designers and interior designers than other provinces. This disparity can be more easily seen by examining the density of the occupations per 100,000 of the workforce.

Table 39: Density for selected Design Occupations in Canada and Ontario

	Canadian Density	Ontario Density
Architects	86	86
Landscape architects	16	18
Industrial designers	66	75
Graphic designers	298	338
Interior designers	78	92
Theatre, Fashion, Exhibit, and Other Creative Designers	66	60
All Design Occupations	609	668

Source: Analysis based on Meric S. Gertler And Tara Vinodrai, Designing The Economy: A Profile Of Ontario's Design Workforce, 2004, The Design Industry Advisory Committee, DIAC, <http://www.utoronto.ca/progris/pdf_files/DesigningTheEconomy.pdf>

Regional concentration

There is strong concentration effects at work with 64% of Ontario's designers living in Toronto giving it a density of 1063 which is 75% higher than the Canadian average and 59% higher than Ontario's average density.

Table 40: Regional changes in the density of designer within Ontario

	Density	Designers Employed	Share of Ontario
Toronto	1063	25,645	64.03%
Ottawa-Hull	633	3,555	8.88%
Hamilton	546	1,780	4.44%
Kitchener	516	1,135	2.83%
Oshawa	514	775	1.94%
London	498	1,075	2.68%
St. Catharines-Niagara	441	795	1.99%
Windsor	431	645	1.61%
Thunder Bay	228	130	0.32%
Greater Sudbury	213	150	0.37%
Kingston		250	0.62%
Ontario	668	40,050	100.00%
Canada	609	91,100	

Designers work in almost every sector of the economy and just on half of them work for specialist design firms. This is consistent with the findings for Queensland and Australia.

Table 41: Proportion of designers employed in specialist design service firms

	All Designers	Architects	Landscape Architects	Industrial Designers	Graphic Designers	Interior Designers	Other Designers
% in Specialist roles	52%	88%	56%	25%	52%	58%	28%

Industrial designers have an especially high rate with 75% of them of embedded in other industries. 60% are employed in manufacturing.

Labour force participation basis

88% of designers are employees, with only 11% self employed.

Table 42: Participation of Designers in Ontario

Ontario 2001	Wage Earners	Self Employed	Unpaid Family Workers
Architects	67%	33%	0%
Landscape architects	69%	31%	0%
Industrial designers	81%	19%	0%
Graphic designers	70%	30%	0%
Interior designers	59%	41%	0%
Other designers1	63%	37%	0%
All Design Occupations	68%	32%	0%
Employed Labour Force	88%	11%	0%

5.4 SINGAPORE

A 2001 study by the National University of Singapore Centre for Business Research and Development determined that the Design cluster in Singapore had a direct contribution of S$3.9billion to Singapore's GDP and S$2.7million in value added which was 1.9% of Gross Value Add. The cluster comprised of 3,500 firms and employed 25,000 individuals.

Table 43: Composition of Singapore's Design Segment 2001

	Number of Firms 2001	Proportion of Design
Architectural Services	382	10%
Advertising Services	686	19%
Industrial Design Services	83	2%
Interior Design Services	665	18%
Fashion Design Services	53	1%
Sub-total (QCIS equivalent definition)	*1,869*	*48%*
Art and Graphic Design Services	1,089	30%
IT Web Design & Consultancy Services	699	19%
Total (Singapore Design Definition)	3,657	100%

Source: The Impact of Visual and Communication Design 1999-2000, IE Singapore, National University of Singapore Centre for Business Research and Development, 2001

However a separate study showed much lower total turnover (S$1.37billion) and value add (S$659 million) for the industries that are equivalent to the Queensland definition of design.

Table 44: Economic Contribution of Singapore's Design Industries

Industry Sector	Receipts (S$Million)	Value Added (S$Million)	Employment (Number)	Value Added per Worker (S$)	Growth Rate 1995-2000
Interior, Graphics and Fashion Design	653	187	4,863	38,865	7.26%
Architectural Services	616	433	7,185	60,264	6.45%
Photography	80	27	1,137	23,747	13.47%
Industrial Design	28	12	186	64,516	0.00%
Total Design	1,377	659	13,371	49,286	27.18%

Source: Assoc. Prof. Toh Mun Heng, Adrian Choo, Terence Ho, Economic Contributions of Singapore's Creative Industries, 2003, Ministry of Information, Communications and the Arts, <http://www.mica.gov.sg/MTI%20Creative%20Industries.pdf>

However these number are still comparatively high through the inclusion of Graphics designers and surveyors (within architecture)

The study found that the economic flow on effects of Design were much higher than other sectors.

Table 45: Output Multipliers for Selected Singapore Segments

Segment of the Singapore Economy	Output Multiplier
Product and Visual Design	1.76
Arts and Culture	1.66
Computers	1.47
Exhibition	1.44
Banking Services	1.4
Petrochemical Refining	1.35

Source: Based on 2000 survey conducted for Toh M.H., Choo A. Ho T., (2003) <http://www.mica.gov.sg/MTI%20Creative%20Industries.

It therefore drew the conclusion that investment by government in growing the Design segment and the use of design in other industries would be more rewarding to the economy than almost all other programs.

Singapore's strategy through IE Singapore is to transition the economy:

1 From a focus on the basic bottom line to a focus on design excellence and innovation

2 From importing design to nurturing local design capabilities

3 From "Manufactured in Singapore" to "Designed in Singapore"

4 From technical to multi disciplinary Education

5 From low to high design awareness

To achieve these the Singapore Government has initiated a number of interconnected programs including:

1 The Design Singapore Council[1] involving government, industry and designers

2 The Design Singapore Website

3 The President's Design Awards

4 The DesignEdge Conference

5 Conferences and workshops for the management of manufacturing and other firms for example The Design or Resign Forum held in 2004 [2]

6 The collection and promotion of case studies

5.5 THE USA

The US Department of Labour publishes detailed statistics on the employment of most occupations including those in the design segment.

Table 46: US Employment and density of selected Design occupations 2002

Design Occupation	2002 Employed	Work-force Density[a]	Median Income	Self employed %	Main Industry of Employment
Graphic designers	212,000	160	$36,680	30%	
Interior designers	60,000	45	$39,180	30%	
Commercial and industrial designers	52,000	39	$52,260	30%	
Fashion designers	15,000	11	$51,290	30%	
Set and exhibit designers	12,000	9	$33,870	30%	
Landscape Architects	23,000	17	$47,400	23%	40% in Architectural Services
Urban and Regional Planning	32,000	24	$49,880		70% in Local Government
Architects	113,000	85	$56,620	20%	66% in Architectural Services
Total Design Segment	519,000	392			
Total US Workforce	132,279,000				

1. http://www.designsingapore.org
2. http://www.designsingapore.org/Default.asp?Page=168

a. density per 100,000 of US workforce

Source: *US Department of Labour Statistics Occupational Outlook Handbook, 2004-05 Edition <http://stats.bls.gov/search/ooh.asp?ct=OOH*

The design segment density of the USA is compared to Queensland's in Section see Appendix 3.7 International Comparisons of Design Density on page 48.

5.6 NEW ZEALAND

The New Zealand government through Industry New Zealand initiated a series of studies in 2003 on the design segment and its impact on the manufacturing sector.

Table 47: *New Zealand Design Segment Key Facts 2001*

	Architecture	Visual arts and crafts	Commercial Art and Display Services
Revenue (NZ$m)	$300	$168	$300
Intermediate consumption	$66	$61	$135
Value added	$210	$92	$165
Employment	4,340		4,310
Geographic units	1,920	3,075	1,814
Value added / turnover	70%	55%	55%
Value added / FTE (NZ$000)	$48,387	$30,000	$38,283

Source: *Mark Walton, Ian Duncan, Creative Industries in New Zealand: Economic contribution, 2002, Industry New Zealand, <http://www.nzte.govt.nz/common/files/nzier-mapping-ci.doc>*

New Zealand also looked at the critical intersection of designers with business. This research[1] defined design as "a business that employs design disciplines (e.g. industrial design, fashion design, graphic design etc.) to create a point of difference or competitive edge to add value to their business."

The research examined four primary sectors involved with design:

1. *Design service providers.*
2. *Businesses/organisations that utilise design services.*
3. *Businesses/organisations that support and service design practice.**
4. *Design education establishments.*

1. Noel Brown and Janice Burns, Integrate! A critical look at the interface between business and design, 2003, Design Industry Taskforce, Wellington, <http://www.nzte.govt.nz/common/files/design-taskforce-report.pdf>

A survey[1] was undertaken of designers and manufacturers as well as face to face interviews. Similarly to surveys in the UK and Denmark the key finding of the research were:

- *Design is a vital enabling capability, not an industry, and works best when integrated with other capabilities across the entire value generation cycle. Portraying design as an industry will engender resistance to the greater uptake of design.*
- *Designers need to be willing to integrate their capabilities with other disciplines involved in the value creation process.*
- *The greater uptake of design will occur when companies are ready in terms of their aspiration and capabilities to provide high value brand leadership.*

The Design Taskforce identified a number of barriers to New Zealand businesses making full use of design. These included:

- *design services are too costly for many small and medium sized enterprises (SMEs);*
- *a general lack of understanding of the value of design; and*
- *the need for improved infrastructure and capability within the design sector*

Source: *The Design Taskforce, Success by Design: Report and Strategic Plan, 2003, New Zealand Trade & Enterprise, Wellington, <http://www.nzte.govt.nz/common/files/design-strategy.pdf>*

5.7 HONG KONG

The Centre for Cultural Policy Research at the University of Hong Kong produced a "Baseline Study of Hong Kong's Creative Industries" for the Hong Kong Special Autonomous Region Central Policy Unit.

The mapping incorporates the value chains of "production input" and "reproduction and distribution" closely related to content production, thus allowing the creative sector to include supportive industries for the construction and manufacturing of designed articles. The study is significant in the thoroughness of the coverage of the creative segments as it utilises a range of measures including industry of employment and occupation as well as input output studies. By taking a whole of economy approach it tries to avoid the double counting that can occur where a study of a specific segment attempts to full cover all effects and therefore extends into accounting for employment or value add that may also be counted in another industry segment.

However the broadness of the HK definition of design building as it does on the broad Hong Kong industry codes makes it difficult to

1. integrate! A critical look at the interface between business and design, (2003) Innovation & Systems for the Design Industry Taskforce

compare its value add figures for the design segment at Au$1,834 million with the Queensland's $320million.

For instance Architecture include Architectural, survey and project engineering services related to construction and real estate services which is much broader than the Australian architectural services of Architects, drafting services, landscape design (not construction). Surveying and real estate are separate industries, albeit also part of the design value chain, but which have not been counted in the Queensland definition.

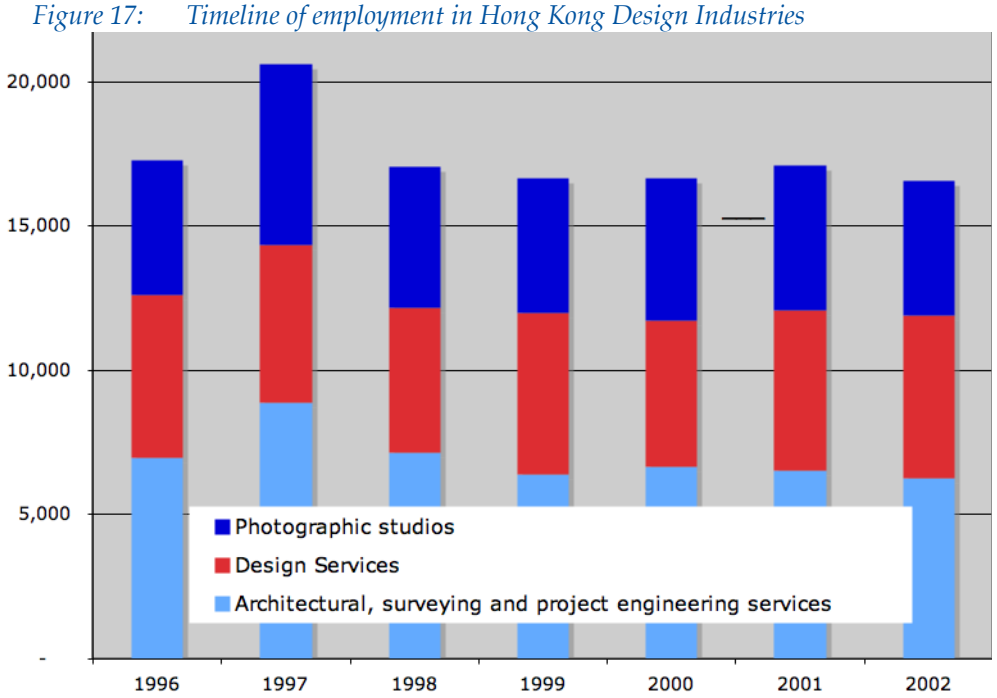
Table 48: The value add of Hong Kong's Design Industries

Value Add of Hong Kongs Design Segment	Value Add AUD$ Million 2001
Architectural, survey and project engineering services related to construction and real estate services	$1,605
Design services	$129
Photographic studios	$100
Total Design Value Add	$1,834

Source: Baseline Study of Hong Kong's Creative Industries

The total employment within the Hong Kong design segment has seen a 2.8% contraction over the seven years from 1996 to 2002. The architectural segment (which includes construction related services) has been responsible for most of this contraction with a 4.8% contraction.

Figure 17: Timeline of employment in Hong Kong Design Industries



Source: Baseline Study of Hong Kong's Creative Industries

Similarly, the density of design employment per 100,000 of the workforce has also contracted by 3.6%.

Table 49: The changes in the density of employment in Hong Kongs Design Segment over seven years

	1996	1997	1998	1999	2000	2001	2002	AAG
Architectural, surveying and project engineering services	227	281	229	205	207	201	193	-5.57%
Design Services	183	171	161	179	158	170	175	-0.63%
Photographic studios	151	199	155	150	154	154	144	-3.72%
Total Design Segment Density	561	650	545	535	518	525	512	-3.59%

Source: Hong Kong 2001 Population Census from Baseline Study of Hong Kong's Creative Industries

The study also highlights the linkage between the Design segment and the manufacturing sector:

> *"Interaction between the creative sector and the manufacturing industries is inextricable. On one hand, creativity is crucial for product enhancement, differentiation and innovation. On the other hand, the creative sector also capitalizes from the manufacturing sector: e.g., film, computer games, comics, publishing and animation industries provide rich "contents" for the generation of by-products, which results in cross-sector synergy within the creative sector itself, and at the same time in licensing copyrights and trademarks for the manufacturers of toys, watches, figures, dolls as well as stationery."*

Source: Baseline Study of Hong Kong's Creative Industries

The report explores the research and development connection between design and the manufacturing sectors with 61.3% of current expenditure for R&D activities in the manufacturing sector being invested in product development.

CONCLUSION

While there are substantial differences in the definition of the Design Industries from country to country, the definitions of the individual creative and specifically design occupations varies little between them. We are therefore able to compare the numbers of specific occupations for each country with reasonable confidence.

To take into account the variations in size of populations of the countries we compared on the basis of "density" being the number of design workers in a specific occupation for every 100,000 people in the country's (or regions) total workforce.

Table 50: Density of selected Design Occupations per 100,000 workforce for Canada USA, Hong Kong and Australia

	Canada	Ontario	USA	Hong Kong	Australia	Qld
Architects (does not include associates)	86	86	85		136	109
Landscape Architects	16	18	17	201	21	21
Urban and Regional Planning	N/A		24		66	66
Industrial Designers	66	75	39		23	17
Graphic Designers	298	338	160		273	208
Interior Designers	78	92	45	170	62	54
Fashion designers	N/A		11		31	17
Theatre, Fashion, Exhibit, and Other Creative Designers	66	60	60		76	57
All Design Occupations	609	668	392	525	574	450

Source: 1/ Analysis of custom ABS cross-tabulations of 2001 census data
2/ Meric S. Gertler And Tara Vinodrai, Designing The Economy: A Profile Of Ontario's Design Workforce, 2004, The Design Industry Advisory Committee, DIAC, <http://www.utoronto.ca/progris/pdf_files/DesigningTheEconomy.pdf>
3/ US Bureau of Labour Statistics
4/ Desmond Hui, Baseline Study of Hong Kong's Creative Industries, 2003, HKSAR Government Central Policy Unit, <http://www.info.gov.hk/cpu/english/papers/baseline study(eng).pdf>

Queensland and Australia has a high ratio of Architects and both have a comparatively low density in the strategically important occupation of Industrial Designers when compared to the US and Canada. Canada (and Ontario within it) have a high density of Graphic Artists, almost double the US and much higher than the density in Australia. Otherwise the ratios are remarkably similar.

Studies of the design sector within Australia and overseas remain difficult to compare because of definitional issues, the constraints of standardised classification codings and differences in methodology such as scaling up from the results of surveys versus the aggregation of census or industry wide counts. Some reports measure only design

industries, others only design occupations. Some studies use broad definitions of occupation or industry which are not as effective for comparison as utilising aggregations of specific finely defined occupations and where possible industries. Greater collaboration on methodological matters would help in making international comparisons more effective.

The Ecology of Queensland Design study has found the application of the density measure to the employment of individual (finely defined) design occupations to be currently the most useful method of comparing countries.

Other measures that will become useful when more data is available from individual countries are:

1 The design services industry proportion of total GDP

2 The design tridents for employment and total earnings.

3 The proportion of design employment to the total employment of the manufacturing and construction sectors.

However what is consistent in the Victorian and overseas reports is the emphasis that design is critically important as much, if not more for what it allows other sectors to achieve than for its own direct contribution of employment, value add and exports.

SECTION 6: THE LINKAGE CHARACTERISTICS OF DESIGN FIRMS

6.1 BACKGROUND

THE SMALL AND MEDIUM ENTERPRISE CONUNDRUM: THE DOUBLE-EDGED SWORD OF "SCALE"

Bifurcation of industry

The majority of Queensland design firms are micro enterprises of between zero (for a sole trader) and five full-time staff. Typically, they may be seen to behave in a similar fashion to the desert dwelling fauna that are used to living in an environment with scarce food of low nutritional value and intermittent water resources. They keep their nutrition demand low by staying small, having a slow metabolism when not busy, and by being very efficient when conditions are good and they are busy.

It is likely that most design firms are correctly sized for survival on the relatively low and often inconsistent level of demand for their services within their locale within Queensland. However the provision of design services to overseas customers requires a business that is an order of magnitude greater in terms of support services, marketing capabilities and project management. The scale that is appropriate to support domestic clients is most often insufficient to access and support overseas clients. For a design firm to scale up to provide this requires additional funds either from retained profits, debt or equity, each of which has a cost to the business. Yet if export sales are not consistent and not quickly profitable then an SME design firm that has "scaled up" to the larger "fit for export" size will soon find itself in financial difficulties without additional funding.

SME manufacturers as well operate in a similar ecology to designers: their natural tendency is often to stay lean and undertake as much of the value adding work of manufacturing such as design "in-house" as this preserves limited cash-flow.

Having sufficient scale is critical to becoming a viable exporter and it can be attained either internally to a company (which is termed physical scale) or through external linkages to individuals, other firms and organisations (termed virtual scale).

Increasing Physical Scale: Vertical and Horizontal Scale

Pundits at the height of the internet hype period of 1998 to 1999 would "spruik" that the size of firms did not matter now that we all work in the digital online world, but unfortunately it still does. The ability to take on larger design projects is determined by the

production resources available, the ability to manage and insulate risk as well as having the skills needed to manage complex and long term projects.

Increasing the size of a design firm allows it to:

1 complete a project more quickly: The rate of throughput of design projects is directly impacted by the head count, whether the project is an "own account" title or a fee-for-service production. The more talent a firm has available the faster they can turn around projects and then attract new ones. The down side is that labour has a high cost and each person must be performing at optimal utilisation to remain profitable in this highly competitive sector.

2 parallel a number of smaller projects which are in different stages thereby smoothing the workload across departments and cash-flow.

3 take bigger bites: Larger physical scale means that a design firm can conceive and execute or bid for larger projects, attract and service larger clients and potentially grow their revenue streams.

Because of the need to continually "feed the beast" larger design firms will have dedicated sales management and business development programs to bring in forward revenue and maximise the revenue from completed projects. This cost-revenue pressure can lead to firms moving into mainstream or populist genres where projects may be less local audience specific and thus make it easier to attract overseas backers with deeper pockets.

Small design firms can get bigger by merging or taking over other companies:

1 a **vertical increase** in scale is where a firm takes over other another company in their supply chain that has different functions and skills. So a fashion design firm could merge or acquire a textile design firm, a fashion clothing manufacturer or a retail store. More of the revenue from the value chain is therefore retained internally instead of being contracted to external suppliers. But doing so can also increase the risk for the firm because it may often be easier and quicker to source innovative new inputs from whoever has developed them in the marketplace than it is to ensure that a firms in-house supplier of that product or service is competitive across every relevant innovation.

2 a **horizontal increase** in scale is obtained when a company merges or takes over competitors with essentially the same skill set. The revenue increases because of the new customers that come across with the new company and the acquired staff pro-

vides the required additional production capacity. The economic rationale is to be able to lower the overheads and infrastructure costs as a proportion of revenue and possibly to increase the firms bargaining ability with suppliers.(although this could backfire).

Many designers are aware of how important it is to be big enough to be able to provide quality administration, reliable production capacity and forward sales activity. However the majority of them are also realistic in their assessment that managing a firm with between 10 and 50 permanent staff is very different from firm of 5 to 10 staff.

However a small design firm can also have a "boosted" level of efficiency (implying greater physical scale) by being able to access on a shared basis critical business infrastructure which would normally take time, capital and management to acquire and utilise. The proposed Queensland Design Centre[1] is a form of shared physical and virtual infrastructure that can boost the efficiency of all SME design firms.

Increasing Scale: Virtually

Cooperation between small and medium enterprises can allow them to team together temporarily to pool talent, skills and resources to address opportunities too large for any of them to obtain as individual firms.

This has several key benefits over physical scale as the carrying costs of labour and equipment are shared across the participating members, therefore maximising the total size of the team and resources without the carrying costs. Care needs to be taken when developing such teams as there may also be implications under trade practices law, regarding collusive practices to win business from competitors.

The down side is that sophisticated project managements skills, resources and systems are essential to track workflow, modifications and milestones. The nature of the production and content sector is highly competitive and secretive therefore acting as a natural barrier to virtual scale, without some sort of independent brokering. Virtual scale is of particular use in the film VFX sector with scenes farmed out on the basis of skills, tight time demands, and spread of risk. It is usual for various visual effects companies to be working on separate sections of the same scene.

Unfortunately, as is often the case in constrained markets, the tradition is for strong competition over scarce customers, which means there is unlikely to be the trust or mechanisms for teaming to occur by itself. Collaboration amongst SMEs in virtual teams is

1. Design Centre Feasibility Study Discussion PaperPositive Solutions on behalf of the Queensland Architecture, Visual Arts and Design Segment Group – February 2005, unpublished

unusual in Australia and this is certainly the case in digital media production. For it to occur would normally require engineering by someone or an organisation external to the players. This may be an entrepreneur who sees an opportunity or it could be a customer. Teaming will have the most chance of occurring around specific, substantial projects and often within a geographic cluster.

However groups of companies who have gained experience at teaming may be able to develop the processes, infrastructure and external services such as independent project management that enable them to undertake "Fast Response Teaming". If the producers make an investment in implementing standard processes, developing co-ordination and communication strategies a Virtual Company supplier should provide a superior result for the customer. Ideally "Fast Response Teaming" would allow customers to have the confidence that a group of suppliers can deliver a result faster, with as a good a quality, more reliably and with greater resilience in coping with unforeseen problems.

At the end of the project the contributors continue on their individual existing projects or on researching and developing their next round of projects. If all has gone well they may possibly combine in new ways later on.

For teaming to occur and to be efficient, infrastructure and trust needs to be present or be able to be created. As this takes time, it would require a substantial project to make it worthwhile for the participants.

Clusters can be very effective at providing this infrastructure so long as the business approach of the cluster manager is to create an "ecosystem". If the manager sees the cluster purely as "real estate tenants" then the trust, awareness of complementary skills, infrastructure and common business processes will not be in place.

What has increased though is the requirement for access to complementary skills especially commercial skills not just the basics like accounting but knowledge of funding, exporting, high technology marketing and interactive web and games design.

The factors that are important for small design firms to increase the virtual scale are:

- business and social networks which are established in part through participation in industry associations and,
- collaboration to attract new business, increase capacity and skills and lower costs.

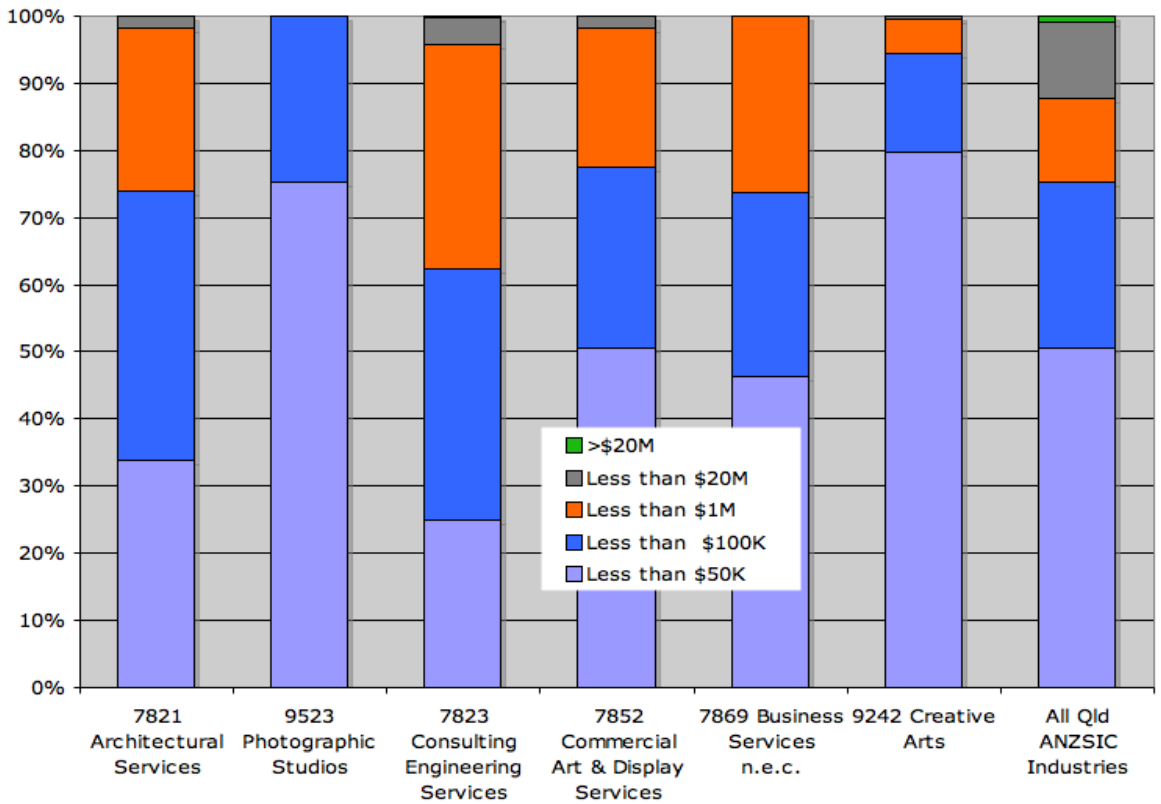
6.2 THE DESIGN SEGMENT IS INHERENTLY MICRO AND SMALL ENTERPRISE

Queensland's design segment is dominated by micro and small enterprise (with a limited number of medium enterprises) to a greater degree than the general business profile of Queensland businesses.

When analysing existing industry data using the Australian and New Zealand Standard Industrial Classification there are only two industries that are substantially or exclusively "design": architectural services and photographic services. Consulting engineering, Business services, Creative arts and Commercial Art and display have relatively small proportions of design companies within them but are included here for completeness.

Of the 2,381 Queensland architectural businesses registered with the Australian Business Register in June 2001, 74% had a turnover less than $100,000 a year; a further 24% had a turnover of between $100,000 and $1million a year. Only 41 (or 2% of) firms had a turnover greater than $1million as compared to 12.4% of all Queensland firms across all industries.

Figure 18: Proportional distribution of the turnover of firms in the Design Segment compared to all Queensland firms



Source: Australian Business Register report of count of selected businesses as at June 2001

For the Photographic Studios sector the data shows no firms with a turnover greater than $100,000 in 2001 which probably reflects the limitations of the inherently sole trader nature of this sector.

Table 51: The numbers of firms by size in the Queensland Design Segment compared to all firms

	Less than $50K	Less than $100K	Less than $1M	Less than $20M	>$20M	total
7821 Architectural Services	807	951	582	41		2,381
9523 Photographic Studios	615	203				818
7823 Consulting Engineering Services	1,247	1,874	1,674	206	6	5,007
7852 Commercial Art & Display Services	866	459	356	29		1,710
7869 Business Services n.e.c.	1,882	1,113	1,063			4,058
9242 Creative Arts	1,426	266	91	7		1,790
All Queensland ANZSIC Industries	45,562	22,082	11,241	10,219	846	89,950

Source: Australian Business Register Report June 2001

The other industry categories that contain design sectors show a similar pattern with:

- 7823 Consulting Engineering Services which contains Naval Design and Product Design sectors having 62% of its businesses with a turnover of less than $100,000.
- 7852 Commercial Art & Display Services which includes graphic design consultancies has 77% of its businesses with a turnover of less than $100,000
- 7869 Business Services n.e.c. which includes Fashion Design has 74% of its businesses with a turnover of less than $100,000

The turnover figures are based on the projected income declared when a business or sole trader applies for an Australian Business Number with the Australian Business Register. It is quite likely the income figures are understated especially for the self employed sole trader as the figure is not subject to any taxation assessment and is therefore not audited.

However the ABR income distribution of design firms is comparable to the results from the Mapping Queensland's Creative Industries: Economic Fundamentals[1] of ninety two firms in the design segment.

The implications for industry development policy development are significant. The development strategies that may be appropriate for medium or large employers are often not appropriate for sole traders

1. SGS Economics and Planning, Queensland's Creative Industries Cluster Mapping & Value Chain Analysis, 2005, Creative Industries Research and Applications Centre, Brisbane, <http://eprints.qut.edu.au/archive/00002425/>

and micro firms with 1 to 5 staff and what works for small business may not work for micro-firms.

6.3 THE LEVEL OF ACCESS TO BUSINESS SKILLS BY DESIGN FIRMS

The competitiveness and financial viability of a design firm is dependent on a unique mixture of craft and technical knowledge, creativity and problem solving, business process skills, interpersonal skills and access to a range of business related expertise.

The business skills required include:

- Accounting and book keeping
- Sales and marketing strategies and implementation
- Legal including employment, contractual and copyright matters
- Business funding including investment raising, debt finance
- Export strategies and overseas markets knowledge
- Research and Development strategies, researchers and funding
- Business, project and personnel management

For a micro or small firm it is difficult for a solo fee earner to be competent in all of these fields and so they are often formally outsourced or informally obtained through business and personal contacts.

CIRAC's Mapping Queensland's Creative Industries: Economic Fundamentals asked a range of questions to determine the degree of access that firm had to business advice.

Table 52: Do Design organisations have access to the business advice they require?

	Yes, have access	From Internal staff or self	From external consultants or specialists	Both Internal and External
Accounting advice	89%	11%	86%	3%
Sales and marketing advice	39%	38%	58%	5%
Legal and copyright advice	71%	7%	93%	%
Business funding advice	27%	32%	68%	%
Export advice	18%	16%	63%	21%
Research and Development advice	41%	26%	74%	%
Business management advice	49%	24%	60%	%
Other business advice	23%	25%	71%	4%

Source: Mapping Queensland's Creative Industries: Economic Fundamentals

Despite 71% of respondents indicating they have access to copyright advice the low number of firms earning royalties from their intellectual property (IP) suggests that the advice that the firms are receiving does not include advice on IP exploitation, or if does, the advice is of questionable quality. It may also be that information flows regarding IP exploitation are asymmetrical.

Access to export advice is soberingly low at 18% and correlates to the low number of export orientated firms identified in this survey. Low levels of access to business funding advice (at 27%) and sales and marketing advice (at 39%) may also restrict a firm's ability to export.

Sole proprietors and small firms not surprisingly have lower levels of access to the business advice that may allow them to grow their business.

Table 53: Access to business advice depending on turnover of the firm

Area of advice	Income Band	<$50K	<$100K	<$1Mill	<$20Mill	Total
Accounting advice	Have access	79%	85%	97%	100%	91%
	Use External	86%	94%	93%	77%	88%
Sales and marketing advice	Have access	26%	10%	41%	57%	35%
	Use External	60%	100%	75%	54%	66%
Legal and copyright advice	Have access	53%	45%	77%	91%	68%
	Use External	90%	100%	100%	90%	95%
Business funding advice	Have access	79%	90%	73%	65%	76%
	Use External	75%	100%	100%	50%	77%
Export advice	Have access	21%	10%	13%	22%	16%
	Use External	50%	67%	75%	80%	69%
Research and Development advice	Have access	21%	15%	43%	57%	36%
	Use External	100%	100%	77%	62%	76%
Business management advice	Have access	79%	75%	50%	43%	60%
	Use External	60%	100%	100%	50%	77%

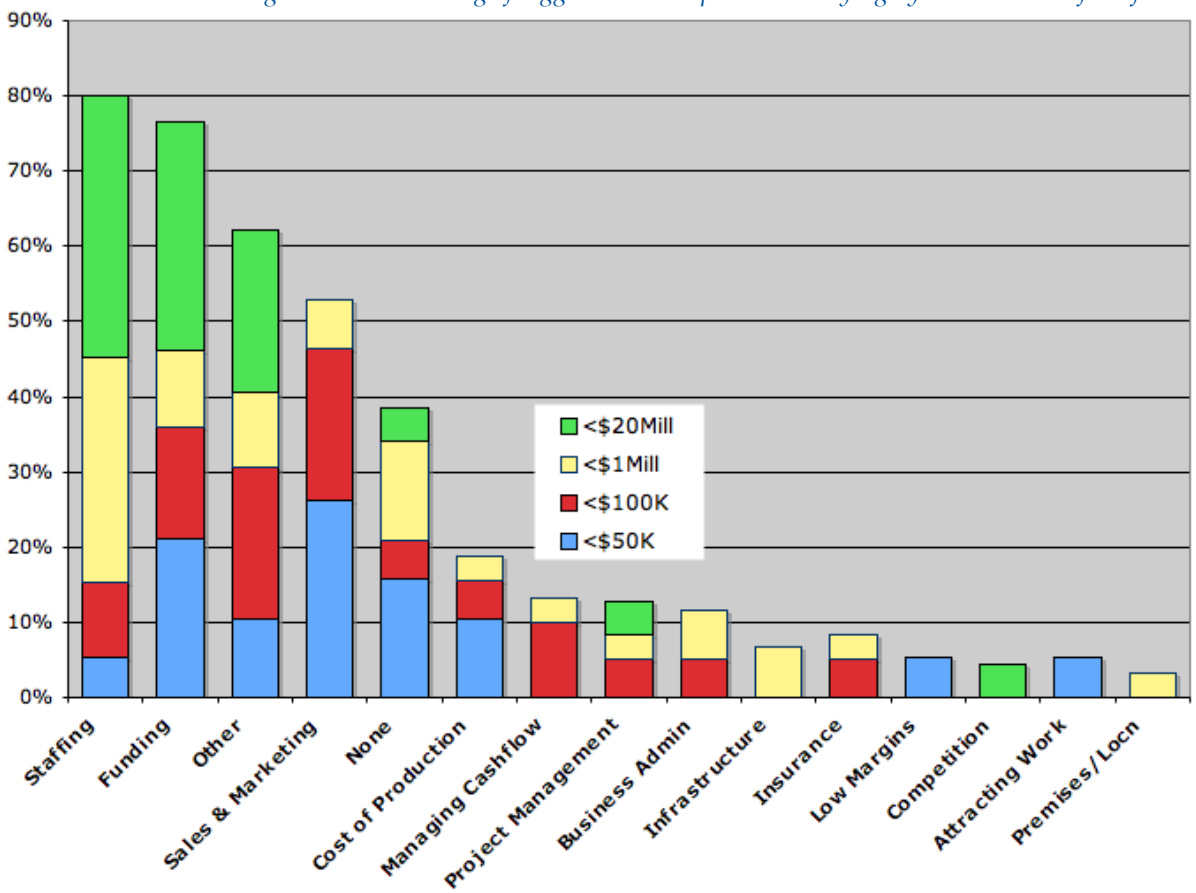
It would appear as though low levels of access to export, funding and marketing advice combined with a lack of IP exploitation are major issues of concern and pose many questions for any economic development agenda:

- Is the business skill relevant or indeed required by the firm frequently, infrequently or rarely?
- Does the proprietor have enough awareness of the advice area to value, interpret and implement the business skill?

- What are the transactional costs involved in obtaining relevant and valuable advice tailored to the discipline area versus obtaining generic advice which is often less immediately relevant to the firm?

The rankings of biggest business problems faced by the design firms adds a further dimension to the understanding of micro and small business access to expertise.

Figure 19: Ranking of biggest business problems varying by the turnover of the firm



Source: Mapping Queensland's Creative Industries: Economic Fundamentals

While responses vary greatly across the income bands by sector, the most common problems for firms were findings sources of funding for growth - public funding, private investment such as equity, venture capital etc. - staffing issues (such as upgrading staff skills, acquiring the right skill sets and others) while sales and marketing problems was the next most common problem.

The table below lists the range of problems respondents have experienced from the stated primary problem of funding to their more secondary problems.

Table 54: The cascade of problems for firms identifying funding as their primary problem

Primary Problem	Next Biggest	Third Biggest	Fourth Biggest
Funding for growth	cost of insurance	Funding	obtaining insurance
	cost of labour	Production	Completing project to requirements
	Finding funding for growth	Infrastructure	Finding suitable premises
	Finding funding for growth		
	Finding funding for growth	Staffing	Retaining good staff
	Low margins	Developing portfolio	Not enough funds for development

The table below lists the range of subordinate problems for respondents indicating staffing issues as their primary problem.

Table 55: The cascade of problems for firms identifying staffing as their primary problem

Primary Problem	Next Biggest	Third Biggest	Fourth Biggest
Staffing	All of the above	Infrastructure	Cyclical nature of industry
	employment costs	Others	GST
	recruiting & retaining staff	Limited government contracts	gst taxation
	Recruiting trained staff	Funding	Adequate funding from Govt
	Recruiting trained staff	Production	Boom/bust production demand
	Recruiting trained staff	Production	Completing project to requirements
	Recruiting trained staff	recruiting & keeping staff	
	Recruiting trained staff	Staffing	Suitable staff training
	Retaining good staff		
Staffing	Retaining good staff	Staffing	Suitable staff training

Table 55: The cascade of problems for firms identifying staffing as their primary problem

Primary Problem	Next Biggest	Third Biggest	Fourth Biggest
	Staff numbers for different job		
	Suitable staff training		
	Trying to get more clients		
	Retaining good staff	Funding for growth	

In a similar pattern to responses stating "funding" as the biggest problem, those giving "staff" as their biggest problem consistently state variations of staffing as their second highest problem as well.

Unfortunately constraints due to the length of the survey did not allow exploration of the issues behind these responses so it is not known if staff recruitment problems arise because:

- there is a shortage of suitably trained staff?,
- small businesses in this field are unwilling to provide on the job training and prefer to recruit "pre-trained" staff.
- the firm is unable to pay qualified staff enough to keep them as the firms margins are tight?
- small business people may be relatively unskilled in recruiting, supervising and motivation staff, especially independent minded creative workers?

Specific research into the staffing attitudes and requirements of this segment would enable these questions to be answered and policies implemented to address the problems.

Are there regional differences in the problems faced?

There is little evidence of any significant difference in the problems faced by design firms in Brisbane when compare to other parts of Queensland.

Table 56: Separating the ranking of the "biggest problems" for Brisbane and other areas of Queensland

	Finding funding for growth	Managing cash	competition	The economic climate	Staffing	Recruiting Good Staff	Legislative changes	Production	Sales and marketing	Too much work	Professional Indemnity Insurance (can't secure!)	searching for affordable premium	paper work	Total
Total %	17	2	2	4	20	1	5	3	10	3	2	1	2	72
Brisbane	10	2	2	3	12	1	2	3	7	3	2	1	2	50
Proportion of the state	20%	4%	4%	6%	24%	2%	4%	6%	14%	6%	4%	2%	4%	100%
Other	7			1	8		3		3					22
Other proportion	32%	%	%	5%	36%	%	14%	%	14%	%	%	%	%	100%

Funding for growth and staffing problems were signalled as the largest problems in both Brisbane and the rest of Queensland, although percentages were higher in regional areas. As a percentage, although the counts themselves are low, legislative change was flagged as a problem most dissimilar to responses from firms within Brisbane.

Does the age of the firm reflect in different ranking of business problems?

Yes: The younger firms struggle with funding and cash flow issues, while the older firms have sorted out these problems and now are faced more with staffing issues.

Table 57: Correlation between Business Problems and firm age

	1 Finding funding for growth	2 Managing cash	3 competition	4 The economic climate	5 Staffing	6 Recruiting Good Staff	7 Legislative changes	9 Production	10 Sales and marketing	13 Too much work	14 Professional Indemnity Insurance (can't secure!)	15 searching for affordable premium	16 paper work	Total
Total	17	2	2	4	20	1	5	3	10	3	2	1	2	72
Proportion	24%	3%	3%	6%	28%	1%	7%	4%	14%	4%	3%	1%	3%	100 %
Less than 2 years	1								1					2
	50%								50%					100 %
3 to 7 years	6	1	1	1	4			1	1		1			16
Proportion	38%	6%	6%	6%	25%	0%	0%	6%	6%	0%	6%	0%	0%	100 %
Over 8 years	10	1	1	3	16	1	5	2	8	3	1	1	2	54
Proportion	19%	2%	2%	6%	30%	2%	9%	4%	15%	6%	2%	2%	4%	100 %

Echoing trends across the other segments surveyed, 38% of firms in operation between 3-7 years and 19% of firms operating for over eight years experience difficulties in obtaining finance for expansion. Moreover, firms in operation for over eight years indicated experiencing problems with staffing and related issues (30% + 2%) compared to 25% for the younger firms.

6.4 THE PATTERNS OF PARTICIPATION ACTIVITY OF DESIGNERS

Membership of Industry Associations

Of the 92 firms surveyed 56% were members of industry associations. It is not surprising that the design sectors with professional standards bodies (architecture, landscape architecture and product design) have a higher rate of participation than the less structured sectors

such as fashion design and jewellery. There is also a strong correlation with older firms being more involved in the industry associations.

Larger firms are more likely to be members than small firms

- <$50K 42%
- <$100K 55%
- <$1Mill 63%
- <$20Mill 61%
- Total 57%

There is no difference in the level of participation between Brisbane based firms and those in other areas.

Industry Clusters Programs

Of the firms surveyed only 13% of respondents indicated participation in industry clusters although this rose to 19% for sole proprietors with income below $50,000.

Table 58: Correlation of design firm's turnover with participation in Industry Clusters

Firm Turnover	Participate in a cluster
<$50K	17%
<$100K	15%
<$1Mill	13%
<$20Mill	9%
Total	13%

Firms in the three to seven year band have the highest participation rate in clusters at 24%.

Table 59: Correlation of design firm's age with participation in Industry Clusters

Age of firm	Number of firms	Participates in cluster
Less than 2 years	2	0%
3 to 7 years	20	24%
Over 8 years	70	10%
Total	92	13%

Overall, the responses from this survey indicate that there are weak formal intra-sectoral linkages. This a major concern considering the potential of industry clustering and business collaboration to generate positive spill-over effects and mutual benefits for firms such as resource pooling, skills transfer and achieving virtual scale efficiencies.

However, as examined in more depth below, while industry clustering is weak, informal social networks and networking are perceived as critical to keeping abreast of industry developments and creating market opportunities

Collaboration with other firms and individuals

The survey investigated the degree to which firms collaborate in attracting and performing projects. Alarmingly, 50 of 92 respondents across all sectors indicated that they never collaborate with other firms, while 4 had collaborated in the past and no longer do.

There is a pattern of the larger firms collaborating more with others possibly because larger firms have more complex or larger projects.

Table 60: Correlation between a firms turnover and the degree of collaboration with others

Income Band	Never	Previously (Not now)	Yes - Very Occasionally	Yes - Occasionally	Yes - Regularly
<$50K	68%	5%	0%	5%	21%
<$100K	55%	10%	0%	15%	20%
<$1Mill	50%	3%	0%	20%	27%
<$20Mill	48%	0%	9%	35%	9%
Total	54%	4%	2%	20%	20%

However the degree of collaboration clearly increases to a 'regular' and 'occasional' basis with an increase in the firm's age, with more established firms more likely to collaborate.

Table 61: Correlation between a firms age and the degree of collaboration with others

	Number	Never	Previously (Not now)	Yes - V.Occassionally	Yes - Occasionally	Yes - Regularly
Less than 2 years	2	50%	0%	0%	50%	0%
3 to 7 years	20	62%	0%	0%	24%	14%
Over 8 years	70	53%	6%	3%	17%	22%
Total	92	55%	4%	2%	19%	20%

Was the collaboration successful?

For those firms that did collaborate 80% stated that their collaboration were successful or sometimes successful.

Did success rate vary with who they collaborate?

While collaboration is twice as likely to be with other firms as it is with individuals there is no significance in the variation in success rate between teaming with firms or individuals.

Table 62: Correlation between who Design firms partner with and their success rate in partnering

	Successful	Unsuccessful	Uncertain
Both	80%	7%	13%
Firms	73%	13%	13%
Individuals	75%	13%	13%
Unsure/not given	0%	100%	0%

Did their success rate vary with industry membership?

There was no difference in success rate between those who were members of industry associations and those who were not.

Table 63: Correlation between success in collaboration and industry association membership

	Yes successful	Not a success	Sometimes
Industry Association Member	75%	11%	14%
Not a Member	79%	14%	7%

While the numbers are small for those who participate in clusters their success rate appear to be lower than the normal respondents. This may be due to the fact that they tend to be younger companies

Does the age of the firm influence success rate?

Supporting previous findings in this survey, not only are more established firms more likely to collaborate, they are also more likely to obtain successful outcomes from their collaborative exploits with a 79% success rate as compared to 3 to 7 year old firms rate of 63%.

Table 64: Correlation between success in collaboration and the age of the firm

	Number	Yes successful	Not a success	Sometimes
Less than 2 years	1	100%	0%	0%
3 to 7 years	8	63%	25%	13%
Over 8 years	33	79%	9%	12%
Total	42	76%	12%	12%

Reasons for collaboration

The most frequent reasons for collaboration were to gain access to customers (or business opportunities), to gain additional skill sets and to manage projects too large for respective firm's capabilities.

Table 65: Correlation of design firm's turnover with reasons for collaborating with others

Income Band	Projects are otherwise to big	Projects require additional skills and creative synergy	Access others customers or contacts	other
<$50K	17%	17%	33%	33%
<$100K	22%	22%	22%	33%
<$1Mill	13%	33%	33%	20%
<$20Mill	17%	42%	33%	8%
Total	17%	31%	31%	21%

However a number of these categories can be further aggregated in ways that reflect the major problems of small business and the two strategies for growing the scale of a firm.

Collaborating because of the "creative synergy" and to gain access to "complementary skills" are elements of growing the **vertical scale** of a firm and this reflects 31% of responses.

Collaborating because the "project is too big" and to "share the risk" are elements of growing the **horizontal scale** or capacity of a firm and this reflects 17% of responses.

Collaborating to attract new customers addresses the perennial problem of SMEs of **growing and smoothing the income** and lowering the cost of new business and this reflects 31% of responses.

It is worthwhile correlating this finding with the recent research by Mark S. Freel[1] of manufacturing in the West Midlands region of England, examining the characteristics of product innovators and non-innovators. He found that innovative manufacturers exhibited much higher number of vertical value-chain linkages as against horizontal or third party linkages in a firms' external environments. Designers are a key part of this value chain for manufacturers.

Why wasn't a collaboration successful?

Respondents indicated a wide range of reasons for why, in their experience, collaboration has been unsuccessful. While responses varied greatly they can be grouped under organisational differences, time constraints, market pressures, or just being at the wrong stage in the business cycle.

1. Mark S. Freel, Strategy and Structure in Innovative Manufacturing SMEs: The Case of an English Region, 2000, Small Business Economics, 15: 27–45, Kluwer Academic Publishers

Organisation of the collaboration

43% of collaboration within the design sector occurs by and large through informal agreements enabled through social interactions and social networks. Larger firms also tend to form limited joint ventures.

Table 66: Correlation of design firm's turnover with the way collaboration teams are organised

Income Band	Limited joint venture	Subcontracted to one team member	Separate contract to customer	An informal agreement	other
<$50K	0%	17%	0%	33%	50%
<$100K	11%	22%	22%	33%	11%
<$1Mill	33%	20%	13%	33%	0%
<$20Mill	25%	0%	8%	67%	0%
Total	21%	14%	12%	43%	10%

While informal social networks are essential to vibrant business dynamics and has been flagged as critical to some of the most vibrant business hubs in the world - i.e. media clusters in Silicon Alley (New York) and multimedia clusters in Los Angeles - the lack of formal business relations (i.e. limited joint ventures) and limited collaboration through business relations at 7.7% is an issue for concern. From this survey, inter-firm relations are primarily informal, or are on a sub-contractual basis, without this interaction materialising into more formal long term business relationship.

How did firms locate their collaborators?

48% of collaboration partners are selected through word of mouth using business networks. There was a 74% success rate for Partnering identified in this way. An existing relationship was a factor in 28% of the cases and had a 91% success rate. Identification through an industry association or cooperative was next most prevalent at 8% and had a 67% success rate.

Table 67: Correlation between the method of identifying partners and the success rate

	Proportion of Methods	Successful	Unsuccessful	Uncertain
Word of mouth/ network or reputation	48%	74%	5%	21%
Existing relationship	28%	91%	0%	9%
Through Business association or cooperative	8%	67%	33%	0%
Other	8%	0%	67%	33%
They approach us	5%	100%	0%	0%
Direct approach to appropriate people/ company	3%	100%	0%	0%
Internal connections	3%	100%	0%	0%
Total	100%	78%	10%	13%

The factors considered for selection of a partner

Reputation (38%), the compatibility of approach (28%) and complementary skills or skills that are required (25%) dominate the factors that are considered important when selecting teaming partners. Collaborations selected on the basis of reputation and reliability had a 100% success rate compared to 64% for approach and 60% for complementary skills.

Table 68: What is the single most important factor in selecting a partner

	Count	Proportion of all factors	Collaboration Successful	Unsuccessful	Uncertain
Reputation & reliability		38%	100%	0%	0%
Approach / compatibility / relationship		28%	64%	18%	18%
Skills Required		25%	60%	10%	30%
Trust		5%	100%	0%	0%
other		5%	0%	100%	0%
total		100%	75%	13%	13%

Business Networking Activities

Twenty two firms were interviewed about their participation in business networking activities. To examine this participation, interviewees were asked: "Do you maintain regular contact with others in your industry who are not currently clients, customers or suppliers?"

The results largely reflect that while networking is more important in some sectors than others, overall rates of business networking is low with only 56% of respondents regularly networking. More positively, larger architectural firms with an income of between $1-19 million all indicated regular network participation. Fashion & Design firms with income levels between $50, 000 -$1 million and Product & Furniture Design also indicated that they regularly engaged in business networking.

It would appear that firms in the 3 to 7 year age band network more often than older firms.

Table 69: Correlation of design firm's age with business networking participation rates

	Yes regularly	Occasionally	Never	Total
Total	9	5	2	16
	56%	31%	13%	100%
3 to 7 years	71%	14%	14%	100%
Over 8 years	44%	44%	11%	100%

The reasons given for networking reflect the reasons for collaboration and are recognised as a key part of staying abreast with the market and the parties within it.

Respondents indicated a range of reasons why they network. The reasons for respondents are:

- to cultivate business opportunities;
- to acquire future projects;
- networking is in their professional interests;
- to keep up with the changing nature of the industry and developments;
- Maintain currency of knowledge;
- share ideas, information & knowledge (information flows);
- having common goals;
- to generate and maintain social relations; and
- to develop a sense of belonging.

While reasons for why respondents network indicate a knowledge of the benefits to accrue from networking - identifying and generating new business opportunities, enabling information flows and various others - time invested in networking is low with only one respondent investing in 6 hours over the duration of a week. The majority of respondents networked for two hours week.

The advantages they received from business networking include:

- Being aware of opportunities;
- Confident more work will eventuate;
- Creative practice development;
- Generating new ideas;
- Industry exposure;
- Industry development;
- Information exchange and sharing;
- establishing and maintaining social networks;
- Leads;
- New Business opportunities;
- Opportunity to work creatively in a detailed framework;
- Professional training;
- Provides a support group; and
- mentoring and learning from others mistakes.

Conversely, a limited number of respondents flagged several disadvantages to arise from networking. In their experience these disadvantages were:

- Designers are defensive;
- networking can generate competition for funding;
- There is a limit to the extent of trust;

- One becomes obliged to do unimportant things;
- Networking often takes considerable time and resources; and
- Networking can involve a lot of talking with little action.

6.5 CASE STUDY: THE FORTITUDE VALLEY DESIGN CLUSTER

Context for the Case Study

The small inner Brisbane suburb of Fortitude Valley is the location for 1.17% of Queensland's and 2.17% of Brisbane total number of businesses as registered with the Australian Business Register.

Table 70: The significance of Fortitude Valley in the number of Registered Businesses

	Registered Businesses in Fortitude Valley	Registered Businesses in Brisbane LGA 305	Fortitude Valley' proportion of Brisbane	Location Quotient
Total of all industries	8,188	376,165	2.2%	
Architectural Services	106	2427	4.4%	2.0
Photographic Studios	68	1816	3.7%	1.7
Total of core Design Industries	**174**	**4243**	**4.1%**	**1.9**
Related Design Industries[a]	228	4855	4.7%	2.2
Partial Design Industries[b]	391	14752	2.7%	1.2
Other connected Design Related[c]	329	9827	3.3%	1.5

a. Creative Arts, Museums and Art Galleries, Art Dealers (Incl. Art Gallery Operation)
b. Business Services n.e.c., Technical Services n.e.c., Consulting Engineering Services
c. For the full list see Appendix Appendix 7: The Concentration of Design related Registerd Businesses in Fortitude Valley on page 7

Source: counts of active businesses on the Australian Business Register as at September 2005

The core design industries of Architectural Services and Photographic Studios have double this proportion. When the number of industries that are related to design are included such as Creative Arts, Museums and Art Galleries, Art Dealers, Business Services n.e.c., Technical Services n.e.c., Consulting Engineering Services and related manufacturing, wholesaling and retailing operations then design is connected to 14% of the Valley's number of business versus 8.7% of Brisbane's. For this concentration to occur there must be cluster effects at work.

The Fortitude Valley Design cluster case study was designed to provide a more intensive analysis of the relationships involved in clustering and business networking in the context of the everyday practices and of the business decision making of those working in the design industries.

The Case Study Focus Groups

Three focus groups were conducted with 30 √ design professionals in total. A set of questions were devised to investigate a number of

dimensions that were thought to be significant to contribute to an understanding of the nature and quality of linkages in business networks in the selected locality. The questions were organised in three levels at which interactions between business sectors were significant – the levels of the industry, the firm and the individual.

The questions were framed to elicit discussion on:

- The nature and quality of network linkages;
- The "tangible" business interests [the outcomes] of linkages; and
- Participants' individual practices in linkage networks
- The different kinds of linkages with:
  - clients;
  - other sectors; and
  - other firms in the same sector.

Across these different kinds of linkages, further themes emerged that identify the implicit understanding and logics characteristic of firms and individuals:

- The nature of the linkages, the purpose of partnering and the strategies for maintaining and managing connections;
- The process of establishing connections and how they change over time, their importance as a factor in growing the business and the Importance of networks to attracting business.

The findings of the study are summarised in the following conceptual grid:

Table 71: Fortitude Valley Case Study linkage factor matrix

	Linkages with clients	Inter-stage Linkages (Grows the vertical scale)	Intra-stage Linkages (Grows the horizontal scale)
Purpose of the linkages	Protect and grow the customer base proximity to clients	Increase the diversity of business or skill offering	Increase the horizontal scale teaming, increasing the capacity
Nature of linkage relationships	spillover from personal	on a business basis as in supplier and customer	Looking for allies, Establishing co-opetition
The process for establishing connections	informal and formal opportunities	requires research into requirements and potential partners	Utilises established connections
How the linkages change over time	dynamic, refresh as established contacts move between firms	Change on the basis of needs such as project needs	relatively stable reflecting individual and firms longevity in an industry

Table 71: Fortitude Valley Case Study linkage factor matrix

	Linkages with clients	Inter-stage Linkages (Grows the vertical scale)	Intra-stage Linkages (Grows the horizontal scale)
Importance to attracting revenue	Important to establish leads new customer from existing clients	Teaming allows participants to identify and bid for a wider range of projects	Informal referrals Strong linkages enable participants to identify and bid for larger projects
Importance to growing the business	critical	critical to performance	Teaming can improve the virtual scale and profitability of the firm

The linkages with clients

Analysis of the nature of linkages of Fortitude Valley designers with their clients identified a number of key factors:

- the importance of the Valley locale;
- the need to work at the relationships to secure long term results;
- the need for cultural empathy.

The importance of the Valley locale:

The locale of the Valley was important to the members of the workgroups because it meant there was increased proximity between firms. Proximity was thought to be essential because as one respondent noted: "proximity is the major thing, you develop relationships with the people you would see on an informal but continuous basis";

In addition a number of firms noticed that they increased their clientele base when they moved into the Valley locality as clients "relish the opportunity to come down here … it becomes a bit of an outing for them in some ways".

It is possible that the location of businesses in the Valley brings them under the "halo" of the Valleys' traditional image as a "creative" area where possibly the practitioners place greater emphasis on the veracity and quality of their "art" rather than on the "pursuit of income ". Prospective clients in the city who are after a consultant who can deliver creative excellence may subconsciously prefer a Valley located consultant rather than a city based consultant with possibly higher cost pressures.

Personal Relationships:

- Strong personal relationships were fundamental to building the business and establishing long term relationships;
- Investing in long term relationships resulted in referrals to further customers;

- Relationships could be nurtured by informal socialising, assisted by the close proximity that enabled seeing people "on an informal but continuous basis". In between projects with clients running into them in social situations was an effective method for maintaining contact and can be more effective than increasing the frequency of formal meetings.

Cultural empathy:

A firm's organisational culture and philosophy can be ascertained by its clients and this can strengthen the relationship. Therefore having like-minded individuals on staff, and business integrity were important.
"We have our own philosophy on how we drive our business and how we treat our clients"

Even without always meeting like-minded people, building empathy through producing good work enabled relationships to be built.

The process of establishing connections with clients

The processes involved in establishing connections were related to the idea of:

- Compatibility and informality;
- Previous networks of association from study and training.

Similar to the ideas expressed about proximity and informality, one young interviewee spoke of making connections with "great clients of my age who just love working with me because I speak their language". There was also the network of individuals who were known to younger practitioners/artists during university study or training who provided information networks and links to work in the sector.

Networks inefficiencies were noted in the context of new employees or those who move from design firm to design firm and often come without established networks. They have to build up their own new networks and are "constantly trying to tap into you to find out who to go to."

How these linkages change over time

There were aspects of the relationships with clients that inhibited long-term continuity. Relationships had a 1-2 year life cycle because there was no intermediate relationship with a dealer.

There was no "one kind of strong relationship with somebody that's built over a long period of time". Relationships could end due to complacency with the work or client relationship lowered the clients satisfaction. Occasionally the move was initiated by the designer through a need to filter out old clients where the volume or margin on the work was reducing.

Importance of the network to attracting revenue

Strong linkages with clients and client networks was seen as critical to attracting both new revenue from existing clients and new revenue from new clients.

Importance to growing the business

Growing the business is a result of being able to attract, sign and deliver on a relatively stable but growing number of projects and to make a respectable margin on them. Client linkages are obviously important for growing revenue but it is the inter and intra stage linkages that will help determine whether a firm has the capacity and skills to profitable deliver on the projects.

Inter-stage Linkages

Inter-stage Linkages are linkages across different firms that operate up and down within the same value chain

Linkages through the value chain can be established either actively; by explicitly applying energy to establishing them, or passively as a by-product of other activities. Both are valid and necessary.

Linkages to manufacturers and commercial distributors require effort to establish and it makes little difference whether they are located in the Valley or elsewhere. as they are normally established to solve a problem or meet a projects specific requirement.

Other vertical linkage occur more casually for instance though media exposure. "It's just a matter of someone actually seeing it and establishing a way of contacting you".

Nature of the linkages

The inter-stage linkages between the firms are essentially project driven. Firms build up a multi-disciplinary team rather than with people doing same things, to fulfil a specific requirement or outcome

"Its very project based and the rules change for that project and that client and to this project and this client and you're working in a team with other people – some are working for you, some are working for the client that you will have to work with – those sorts of things. It's very much project by project. The rules change"

In a best case scenario for an experienced firm:

"you build up a whole range of people that you like to work with … different people have different specialities and if someone is particularly good at one sort of thing then you focus on maybe approaching them for a particular product or a particular service"

The process of establishing connections:

Cross-sectoral and inter-stage connections are often with people from a shared background for instance there are strong networks of people who studied design together at university and then moved into different disciplines who frequently work together when appropriate. "If you are a designer and no matter what discipline you're in, I think you are going to click with someone and it just

happens. You have to work hard with building relationships, as you would with client relationships"

Other linkages are established through being on boards working on strategies and policies this is seen as a good way of establishing connections and getting to understand an individuals style of work before choosing to partner with them.

Teams are built to achieve an outcome: "Unless those people I've got in the room, artists or other designers trust me, they are not going to be supportive. I have to build a relationship first to bring a collective thing to the table"

Government or customer company policies can make teaming less effective as they may try and force the establishment of linkages between parties that are not compatible:

"the whole point of spontaneous collaborations by two design parties... is being destroyed by the fact that the selection committee might be indifferent to what you might want to do yourself"

This would be particularly important in areas such as the selection of Public Art commissioned works.

- On the part of design practitioners, the logic of design collaborations is oriented towards achieving a holistic and satisfying piece of work;
- Selection committees may not be sensitive to aesthetic priorities;

Enforced legislative requirements do not pick up on the nuances of the artistic associations that create the best outcomes in the project work. There are policy requirements for including collaborative partnership in project work in the design field. However, this kind of imperative, almost "government decree", appears to face some resistance:

Project planners need to recognise that "nobody likes being told" and they should employ more subtle tactics to align the people with the right skills to the projects;

One interviewee noted that the current bureaucratic process sometimes worked against achieving a desired aesthetic goal because it brings people and firms together that are not culturally attuned or do not share the same creative values. As the quantitative survey results show as well as complementary skills there needs to be compatibility in attitude.

The association of people in networks differed on the basis of whether the interviewee was a project leader or a participating individual.

Individual artists/crafts-people/performers

This group needs to increase their visibility in as many ways as possible, they need to be seen, to exhibit their work and to get a "foot in the door";

They need to meet others with similar or complementary attributes prior to initially working together – "partly because you're in people's mind as well. They see you all the time"
"You see someone whose work you like, get the contact and the relationship develops and expands out from that. As an individual artist, a lot of it is just putting yourself out there, get to know the organisations that represent you and the people in the organisations – that sort of tends to expand out from there".

Firms/Project leaders/ Planners

- Firms need to establish and maintain a memory bank of knowledge about who's who in the field and therefore who might be suitable for projects when they "land".;

Firm level networking b requires that each firm has access to a network that is different to that of the other firms. In effect they have to be self reliant:
"The only way that really works is that I have to build up a knowledge of people, of artists that are around and I have to keep making it my role to keep finding who is around. So my networking is because of my self education. I can't do my work unless I have an awareness of the artists."

Projects that are involve partners with long term relationships lead onto other work for the partners; In many ways firms build up and draw on favours with each other. In much the same way satisfied business clients act as a bridge between networks when they introduce firms to other levels of government or to project work within their network.

A firm would not be seemed as valuable to team with if it had very poor reputation or a very limited network as it adds little to the combined network.

Importance of the network to attracting revenue

Strong inter-stage linkages are important to enable the sharing of client networks to generate new revenue from new clients. It also enables a firm to tender or bid for projects with a wider range of skill requirements than would be the case without the network. This expands the type of client projects that a firm (as part of a team) can credibly market to.

Importance to growing the business

In the context of growing the business, the "efficiency" of the inter-stage networks was a key concern. These factors included knowing the kinds of workmanship available in the supplier base and building teams with specific people "because they know how to deliver what that client wants"

In this context efficiency can also be aligned to reliability and trust and reputation.

Intra stage or horizontal Linkages

Intra stage or horizontal linkages between firms with essential the same skills involves collaborative competition or co-opetition and therefore trust is important but never unconditional.

Nature of the linkages

Intra stage linkages have two "states": stand-by and active.

Stand-by linkages involve the ongoing networking amongst peers that happens through industry associations, industry development workgroups and advisory committees. They are

Active linkages are established to grow the work capacity of the firm to meet substantial external opportunities or requirements that cannot be met from existing internal resources. They are therefore much less common than inter-stage linkages.

Process of establishing connections:

Formal teaming is normal established from members of the firms current industry network who are thought to be compatible.Industry–based opportunities

Subjective qualities are important in moving from informal, stand-by connection to a formal project based, often contracted connection. These include the quality of work, industry reputation and profile as well as getting on well together.

Changes over time:

Stand-by networks, by nature are reasonably stable over time while active partnering if most often purely for the life of the project. It is reasonably uncommon for their repeat teaming between the same partners with similar skills.

Importance of networks to attracting revenue:

Stand-by peer referral can generate leads which generate new income from new clients. Having the capacity to partner for bidding for much larger project has the potential to grow income for the firms involved.

Importance to growing the business:

Peer partnering has the potential to sustainably grow the business but in reality only does so if the firm or firms can move their in the client attraction and production capacity to a higher level of efficiency. Any friction or inefficiency in the project coordination reduces the likelyhood of achieving a long term growth benefit.

6.6 CONCLUSION

Designers are substantially either sole proprietors or micro enterprises with a limited number of medium sized firms. The size of the firms is not a substantial barrier to commercial success if the firms are efficiently run and are able to efficiently utilise a network of skilled specialists to provide a range of business and discipline skills and capacity.

The few larger, and often older, firms have better, more mature networks and are therefore able to attract larger and more complex projects. They have greater ability to market their skills outside of their immediate customer base and beyond their geographic location. The smaller firms often appear trapped in a "busy" cycle that does not allow them the capacity to grow their business support networks and to afford to hire specialist advice that could grow their firm's efficiency, competitiveness and growth capacity.

The interactions of firms with others within their sector is important but it is far more important for them to have formal and informal interactions with members of their supply chain and especially the organisations in their customer's industries.

It would be beneficial to develop industry support programs that can:

- improve the formal and informal networks of the sector especially with prospective customers and suppliers,
- bridge the understanding gaps and under appreciation by the manufacturing and business sectors of the strategic importance and function of formal design.

SECTION 7: CONCLUSIONS

To conduct the study of the ecology of Queensland design, CIRAC needed to develop a robust methodology for measuring and comparing the key characteristics of Queensland and its regions with other regions and countries.

Analysis of the primary and secondary data gathered using this methodology has shown that Queensland has a wealth of the crucial design talent and reasonably comparable densities of people with design qualifications to NSW and Victoria. In line with many other countries it faces a substantial challenge in bringing this pool of talent to bear on the improvement of the competitiveness of the industries that should be utilising design excellence.

Industries as diverse as fashion and clothing manufacturing, building and housing construction, medical, jewellery, household and electrical appliance manufacturing, should all have as one of their fundamental core values the pursuit of excellence in design through the application of a rigorous design process.

The distinction between manufacturers, construction companies utilising in-house designers or contracting external design specialists is less important than the way design is utilised. The position firms have on the Design Ladder is paramount. The Design Ladder demonstrates how variations in the levels of investment in the design process influence companies competitiveness in the development of new and enhanced products and services.

The research in Queensland, Victoria, New Zealand, the UK and Denmark has shown that unfortunately the design segment is currently separated from the bulk of the proprietors in the manufacturing and industry segments that should be customers of their skills. Their lack of understanding of the importance of design, or their inability to make the substantial and long term investment in the higher rungs of the design ladder will constrain these firms ability to compete and grow.

The opportunity for Queensland is to develop programs that will allow those trained and skilled in industrial and product design, visual arts and craft professionals, illustration and design and architecture of whatever discipline to directly utilise these skills in improving the domestic and international competitiveness of its industry.

In particular Queensland needs to undertake further practical research to better understand the manufacturing sectors, to develop strategies to improve competitiveness and to monitor the response to such programs:

1 conduct annual surveys of senior management of all Queensland based members of the manufacturing and construction industry along the line of the Design Council of the UK annual survey of design usage, innovation and product investment.

2 understand better the alternative outlets for furniture design and other design firms including conducting an economic and market impact survey of the local craft markets.

3 develop and maintain a register of specialist design services, design projects and case studies.

Great design enables a product or service to meet or exceed the expectation of customers. Great design delights customers and elevates the purchase of them beyond a reliance on calculations on price versus functionality. The great products of the past thirty years, whether cars, buildings, silverware, clothing or electronic devices elicit an emotional response in those that want to buy it. In a world of intense competition and falling production costs the only sustainable way to compete is not on price but on appropriate and excellence in design.

Creative Industries Research and Applications Centre
Queensland University of Technology

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